

1996 DOE Technical Standards Program Workshop

PROCEEDINGS



MASTER

April 10-12, 1996

St. Louis, Missouri

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Department of Energy
Washington, DC 20585

July 1, 1996

Distribution

1996 DOE Technical Standards Program Workshop - Proceedings

A copy of the proceedings from the 1996 DOE Technical Standards Program Workshop is enclosed for your information and reference.

These proceedings provide a record of the significant activities which took place during the workshop from April 10-12, 1996, in St. Louis, Missouri.

Any questions or comments may be directed to me at (301) 903-2856.

Sincerely,

A handwritten signature in black ink, which appears to read "Richard J. Serbu".

Richard J. Serbu
Manager, DOE Technical Standards Program

Enclosure

Distribution: Workshop participants

1996 DOE Technical Standards Program Workshop

PROCEEDINGS



April 10-12, 1996

St. Louis, Missouri

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1996 DOE Technical Standards Program Workshop

The 1996 DOE Technical Standards Program Workshop was held on April 10-12, 1996, at the Adam's Mark Hotel in St. Louis, Missouri. Attachment A provides the agenda for the workshop.

There were 93 attendees from across the country (see Attachment B for a complete listing). Most of the DOE Headquarters organizations, Operations Offices, and national laboratories were represented as were the DOE management and operating contractors involved in managing DOE facility operations. More than 30 representatives from both the public and private sectors shared their expertise and experiences as featured speakers addressing "The Strategic Standardization Initiative - A Technology Exchange and Global Competitiveness Challenge for DOE".

A copy of the presentation materials provided by the workshop speakers is included as Attachment C*. Additional copies of these proceedings may be obtained by contacting Lori Lane of the Technical Standards Program Office at (423) 574-7886.

- * Presentation material in Attachment C has been compiled in the same sequence as the material was presented at the workshop, i.e.;

Wednesday, April 10

Tutorial

Special Presentation (Sergio Mazza, President American National Standards Institute, [ANSI])

Thursday, April 11

Special Presentation (Robert Walsh, Director for Strategic Standardization Management, ANSI)

Panel Presentations: Interagency Committee on Standards Policy

Panel Presentations: Department Standards Program Status

Panel Presentations: Technical Standards Program Case Studies

Friday, April 12

Panel Presentations: Technology Exchange Programs and Practices

Panel Presentations: Information Superhighway Standards

Panel Presentations: DOE Technical Standards Program Goals and Objectives

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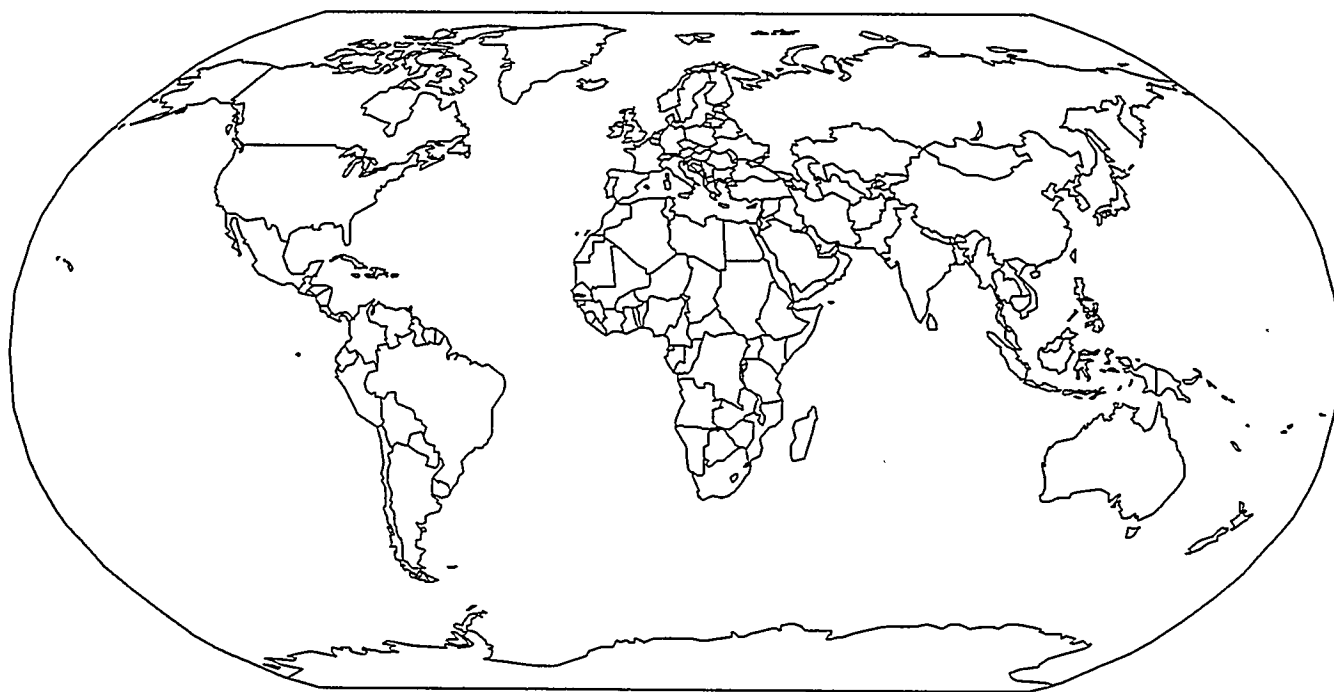
Attachment A

**1996 DOE Technical Standards
Program Workshop**

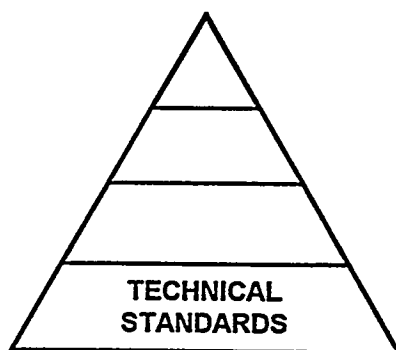
AGENDA

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DOE TECHNICAL STANDARDS PROGRAM 1996 WORKSHOP



The Strategic Standardization Initiative
***A Technology Exchange and Global
Competitiveness Challenge for DOE***



April 10 - 12, 1996

Adam's Mark Hotel

St. Louis, Missouri

Abstract

The Department of Energy (DOE) Technical Standards Program workshop for 1996 will be held on April 10-12, 1996, at the Adam's Mark Hotel in St. Louis, Missouri. The workshop theme is "The Strategic Standardization Initiative - A Technology Exchange and Global Competitiveness Challenge for DOE." The workshop goal is to inform the DOE technical standards community of strategic standardization activities taking place in the Department, other Government agencies, standards developing organizations, and industry. Individuals working on technical standards will be challenged to improve cooperation and communications with the involved organizations in response to the initiative.

Workshop sessions include presentations by representatives from various Government agencies that focus on the coordination among and participation of Government personnel in the voluntary standards process; reports by standards organizations, industry, and DOE representatives on current technology exchange programs; and how the road ahead appears for "information superhighway" standardization. Another session highlights successful standardization case studies selected from several sites across the DOE complex. The workshop concludes with a panel discussion on the goals and objectives of the DOE Technical Standards Program as envisioned by senior DOE management.

The annual workshop on technical standards has proven to be an effective medium for communicating information related to standards throughout the DOE community. Technical standards are used to transfer technology and standardize work processes to produce consistent, acceptable results. They provide a practical solution to the Department's challenge to protect the environment and the health and safety of the public and workers during all facility operations. Through standards, the technologies of industries and governments worldwide are available to DOE. The DOE Technical Standards Program, a Department-wide effort that crosscuts all organizations and disciplines, links the Department to those technologies.

We hope everyone will make the most of the workshop to pursue personal and professional growth and to strengthen the Department's effort toward strategic standardization.

AGENDA

TUESDAY, APRIL 9

6:00 - 7:00 p.m. Registration

WEDNESDAY, APRIL 10

8:00 - 11:00 a.m. Registration

8:30 - 11:30 a.m. **Tutorial: Standards Development and Maintenance Process**
Jeffrey Feit, Assistant Manager, DOE Technical Standards Program

11:30 - 1:00 p.m. Lunch (on your own)

GENERAL WORKSHOP OPENING

1:00 - 1:10 p.m. **Welcome and Introduction of Keynote Speaker**
Richard L. Black, Director, Office of Nuclear Safety Policy and Standards, DOE - Environment, Safety, and Health

1:10 - 1:40 p.m. **Keynote Address**
Ambassador Michael B. Smith, Senior Principal at Capitoline/MS&L; Member of the National Research Council's International Standards, Conformity Assessment, and U.S. Trade Policy Project Committee

1:40 - 2:30 p.m. **Workshop Overview and Program Status Report**
Richard J. Serbu, DOE Technical Standards Program Manager

2:30 - 3:00 p.m. Break

3:00 - 4:00 p.m. **Special Presentation: Standardization in Global Competitiveness**
Sergio Mazza, President, American National Standards Institute (ANSI)

4:00 p.m. Adjournment

5:00 - 7:00 p.m. Reception

AGENDA

THURSDAY, APRIL 11

8:00 - 8:30 a.m. **Special Presentation: Center for Strategic Standardization Management**
Robert Walsh, Director, Center for Strategic Standardization Management, ANSI

8:30 - 10:00 a.m. **Panel Presentations: Interagency Committee on Standards Policy (ICSP)**

ICSP was formed to ensure coordination and cooperation among Federal agencies on standards issues and to develop policy for more effective coordination with the private sector. The progress of ICSP in implementing this policy will be presented by representatives from various participating agencies, and from the private sector.

Moderator:

Richard L. Black, Director, DOE's Office of Nuclear Safety Policy and Standards

Speakers:

Patrick Cooke, Office of Standards Services, National Institute of Standards and Technology, Department of Commerce

Thomas M. Bacon, Commodity Management Specialist, Environmental and Engineering Policy Division, Federal Supply Service, General Services Administration

Gregory E. Saunders, Deputy Director of Acquisition Practices, Office of the Assistant Secretary of Defense, Department of Defense

Arthur Reilly, Director, Network Performance Requirements and Applications, Bellcore

Dave Haataja, Manager of Governmental Affairs, Underwriters Laboratories Inc.

10:00 - 10:30 a.m. **Break**

10:30 - 12:30 p.m. **Panel Presentations: Department Standards Program Status**

The Secretary of Energy has directed that criteria be established for a standards program to ensure the protection of the environment and the safety and health of our workers and the public. Members to the Department Standards Committee will report on the progress of the program, and how technical standards are affected.

Moderator:

Walter Scott, Special Technical Assistant to the Office Director, E, S, and H, Richland Operations Office, DOE

Speakers:

Dr. David B. Nelson, Associate Director, Office of Computational Technology Research, DOE - Energy Research

Marcia L. Morris, Director, Office of Organization and Management, DOE - Human Resources and Administration

Rod McCullum, Lead Nuclear Engineer, Chicago Operations Office, DOE

Karen Boardman, Director of the Performance Assessment Division, Albuquerque Operations Office, DOE

AGENDA

12:30 - 2:00 p.m. **Lunch (provided)**
 Special luncheon address
 David W. Cheney, Acting Director, Secretary of Energy Advisory Board

2:00 - 4:00 p.m. **Panel Presentations: Technical Standards Program Case Studies**

What has been effectively standardized within DOE, and how was it accomplished? Many standardization success stories have been heard from around the DOE complex. Representatives from various DOE field offices will present specific case studies and will highlight the process used to develop and implement the standards as well as the lessons learned during the process.

Moderator:

George E. Detsis, Physical Scientist, Technical Assistance Team Leader, Office of Field Support, DOE - Environment, Safety, and Health; DOE-EH Standards Manager

Speakers:

Dennis J. Kubicki, P.E., Fire Protection Engineer, Office of Worker Health and Safety Policy, DOE - Environment, Safety, and Health

John W. Arendt, P.E., Consultant, John W. Arendt Associates, Inc.; Chair of the ANSI Accredited N14 Committee on Packaging and Transport of Radioactive and Hazardous Materials

Dr. Ralph T. Johnson, Program Manager for Metrology, Sandia National Laboratories; Vice-Chair of the National Conference of Standards Laboratories Z540 TQM Committee on Calibration Systems Requirements

Kenneth L. Swinth, (retired) former Senior Program Manager, Health Physics and Industrial Hygiene Programs, Battelle, Pacific Northwest Laboratory

4:00 p.m. **Adjournment**

AGENDA

FRIDAY, APRIL 12

8:00 - 8:30 a.m. **Special Presentation: Strategic Standardization Implementation**
Robert Walsh, Director, Center for Strategic Standardization Management, ANSI

8:30 - 10:00 a.m. **Panel Presentations: Technology Exchange Programs and Practices**

What is the approach toward technology exchange between DOE and the private sector and how does it happen? Technology exchange is continually fostered within the standards developing organizations. Representatives involved in standards development from industry, DOE Headquarters, and DOE laboratories will discuss programs currently under way to encourage and facilitate the transfer of technology between industry and the Government.

Moderator:

*Paul A. Gottlieb, Assistant General Counsel for Technology Transfer and Intellectual Property,
DOE - General Counsel*

Speakers:

*James E. Quinn, Special Assistant to the Deputy Assistant Secretary for Industrial Technologies,
DOE - Energy Efficiency and Renewable Energy*

Jerome Walker, Business Development Manager, IEEE - Standards

Terry Dailey, Manager of Technology Programs, Westinghouse Savannah River Co.

*Louise Dunlap, Director, Office of Science and Technology Partnerships, Oak Ridge National
Laboratory*

10:00 - 10:30 a.m. **Break**

10:30 - 12:30 p.m. **Panel Presentations: Information Superhighway Standards**

What are the practical needs for the information superhighway, and how will we access it? Formed by ANSI, the Information Infrastructure Standards Panel (IISP) is charged with accelerating the development of standards to enable cross-industry networks to interconnect and interoperate. Members of the IISP including representatives from ANSI, NIST, a standards developing organization, industry, and DOE will report on their progress and future work.

Moderator:

Richard (Chick) M. Hayden, Director of Infrastructure Programs, ANSI

Speakers:

Richard (Chick) M. Hayden, Director of Infrastructure Programs, ANSI

*Jim Isaak, Director, Information Infrastructure Standards, Digital Equipment Corporation; Chair IEEE
Standards Coordination Committee on Information Infrastructure*

Jim Romlein, President, MIS Labs

*David K. Berkau, Team Leader, Information Architecture Team, Office for Information Management,
DOE - Human Resources and Administration*

AGENDA

12:30 - 1:30 p.m. Lunch (provided)

1:30 - 3:00 p.m. Panel Presentations: DOE Technical Standards Program Goals and Objectives

Where is the DOE Technical Standards Program headed, and what can we expect to change? Technical standards form the foundation of the DOE Directives System and must be managed effectively to ensure their integrity. Reports will be given on the status and future of the "necessary and sufficient" pilot programs, and senior DOE managers responsible for standards policy and direction will share their vision of standards and their importance for future DOE operations.

Moderator:

Lynne W. Kroggel, Quality Assurance Specialist, Los Alamos National Laboratory; LANL Standards Manager; Vice-Chair of the Technical Standards Managers' Committee

Speakers:

Gerald E. Gears, DOE - Defense Programs

Dinesh Gupta, DOE - Environmental Management

W. Earl Carnes, Department Standards Committee, DOE - Environment, Safety, and Health

Richard J. Serbu, DOE Technical Standards Program Manager

3:00 p.m. Adjournment

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Attachment B

**1996 DOE Technical Standards
Program Workshop**

LIST OF ATTENDEES

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Jim Williams

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Madelyn Wilson

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OSTI
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Phone: 423-576-8408
Fax: 423-576-2865

James J. Wolf

Western Area Power Administration
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Golden, CO 80401
Phone: 303-275-2800
Fax: 303-275-1717

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Attachment C

**1996 DOE Technical Standards
Program Workshop**

**PRESENTATION
MATERIALS**

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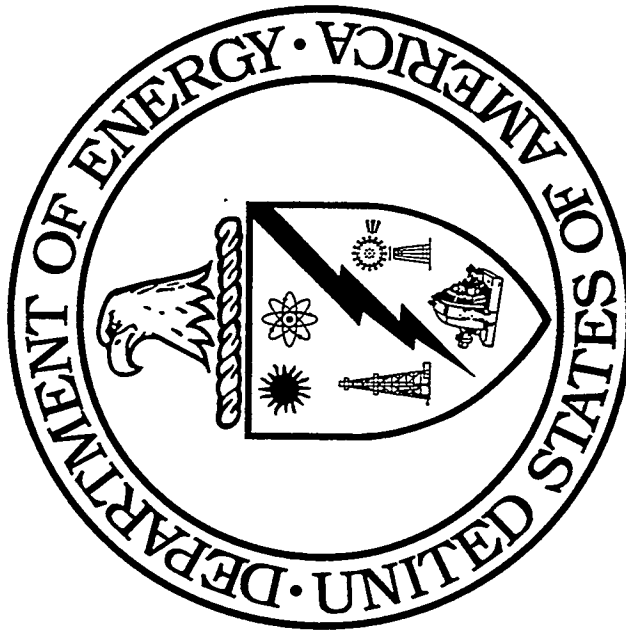
Wednesday, April 10

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U.S. Department of Energy

DOE Technical Standards Program
1996 Workshop



Jeffrey D. Feit

Technical Standards Program

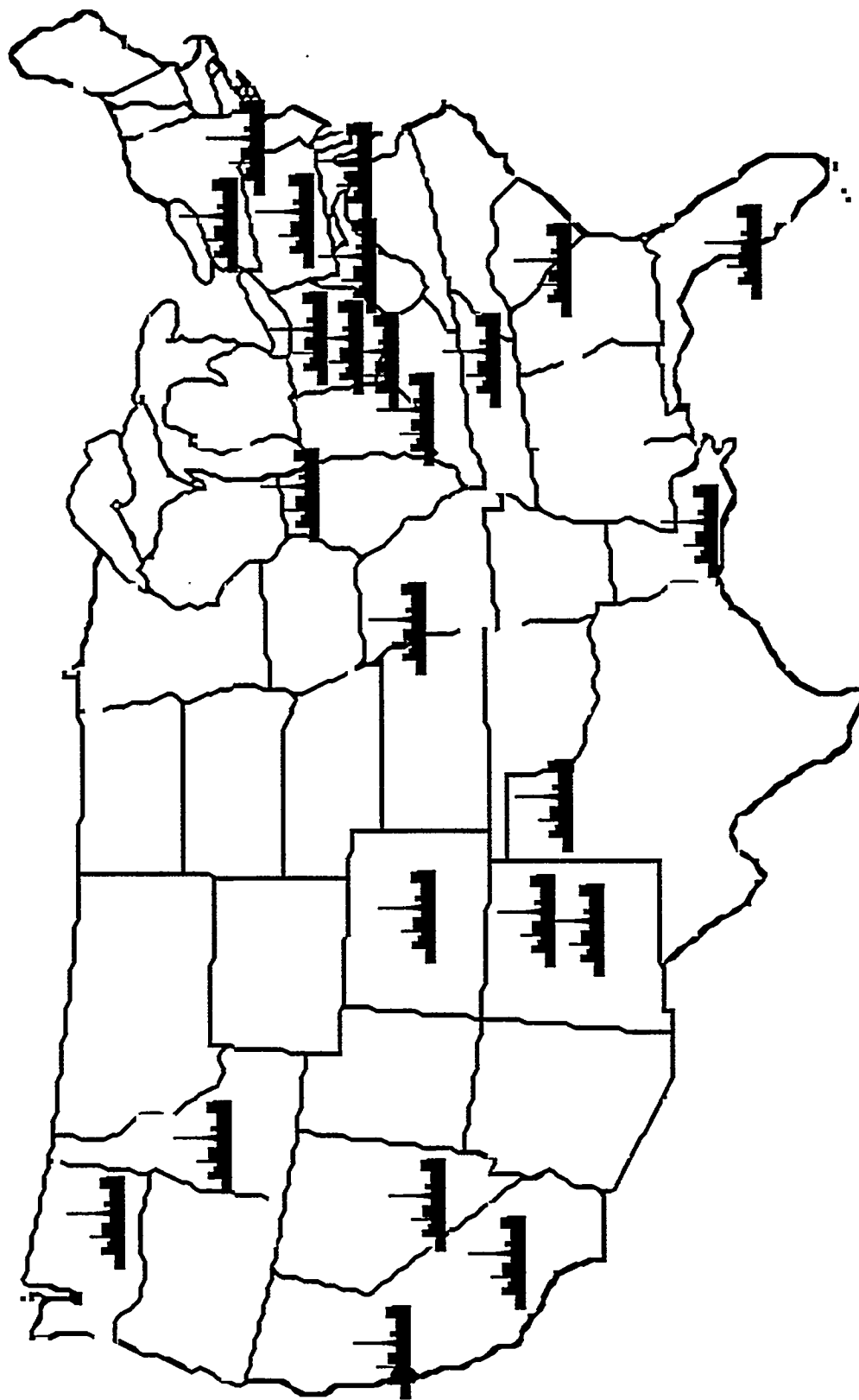
DOE Technical Standards Program 3/29/96

Why this tutorial?

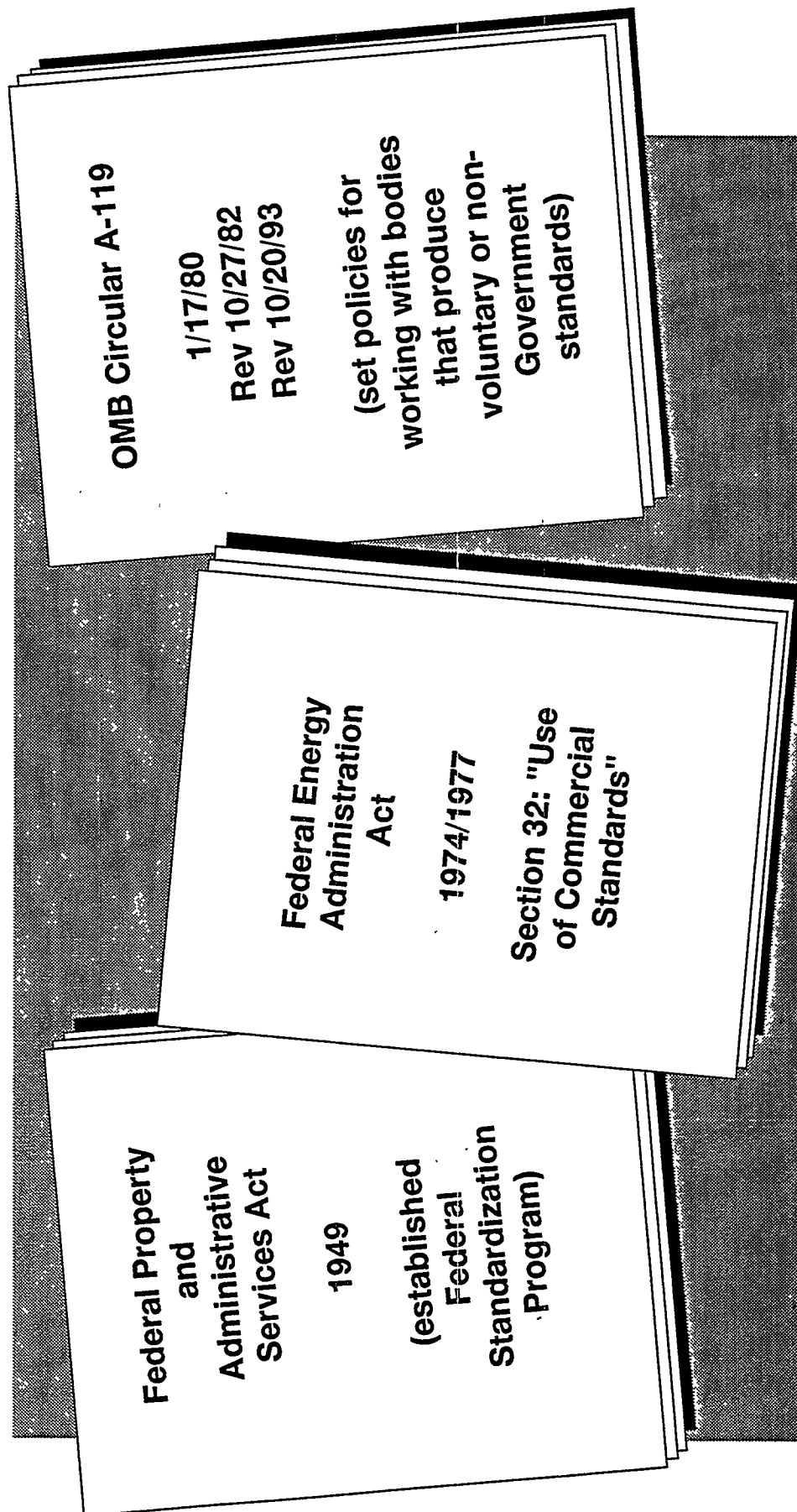
To promote awareness of the DOE Technical Standards Program, including...

- the role of technical standards in the DOE document hierarchy
- use of voluntary (non-Government) standards
- resources provided by the Technical Standards Program Office (TSPO)

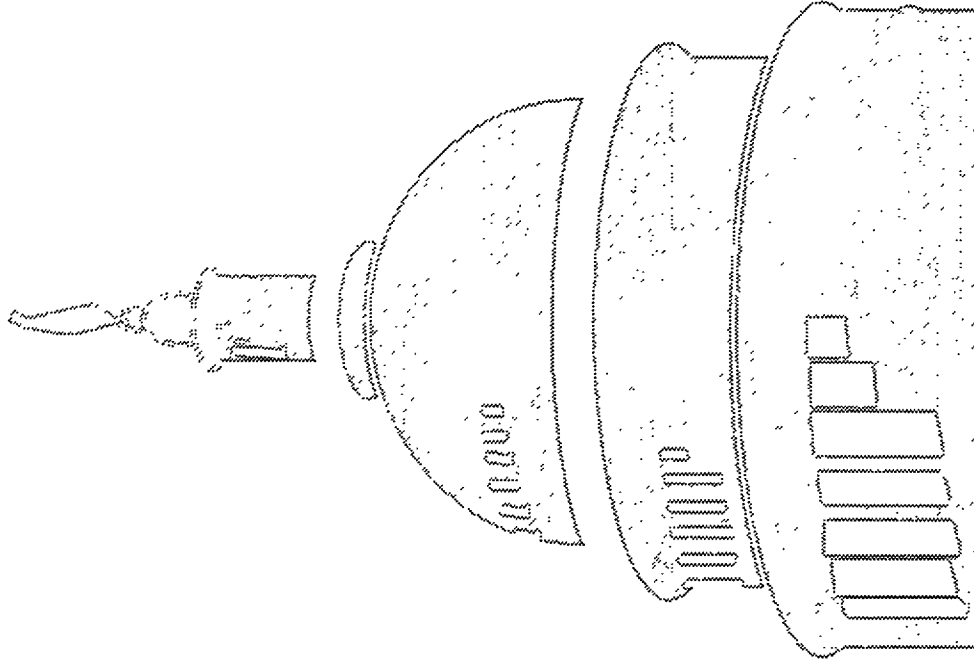
Historically DOE sites have independently developed practices and procedures



The drive toward standardization has gathered momentum since 1949



Other standards-related milestones



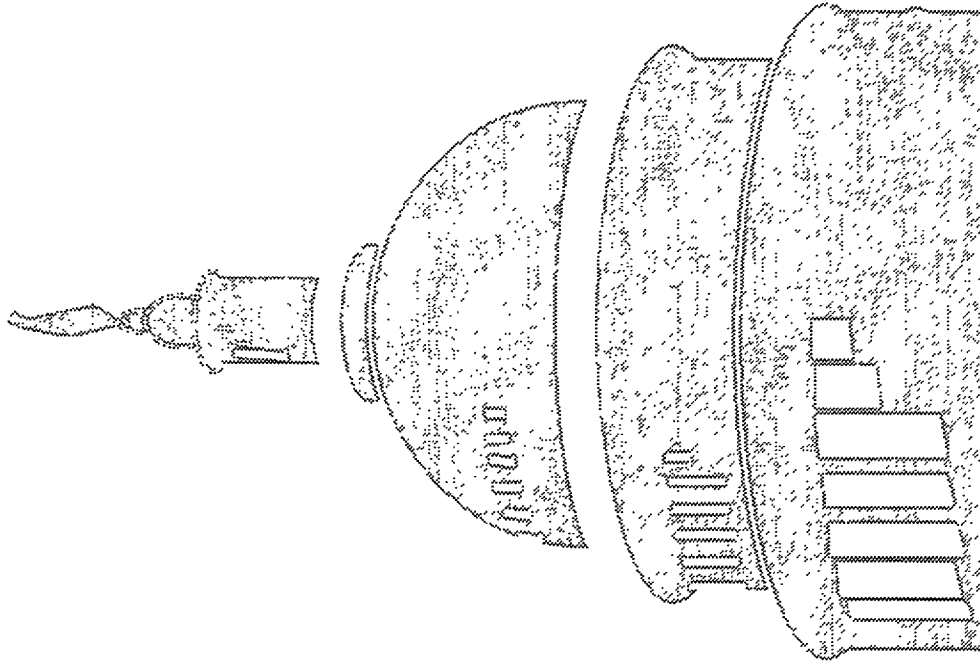
- Trade Act of 1979

Established the use of non-Government standards as national policy (including international standards)

- International Competitiveness Act of 1989

Established policy that U.S. Government agencies would adopt and use the metric system of international measurements

Other standards-related milestones



- Executive Order 12770, July 25, 1991

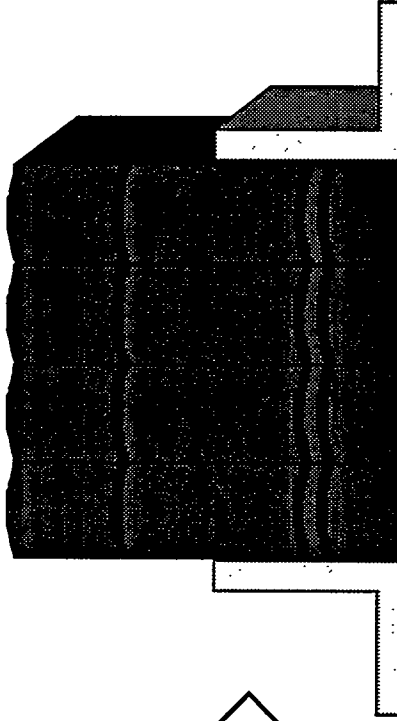
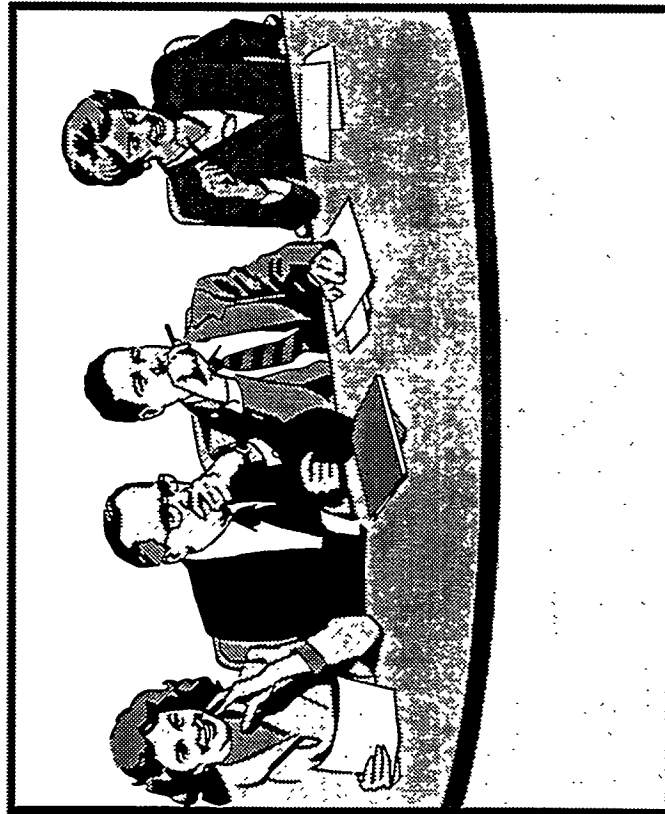
Directed Federal agencies to implement the metric system

- National Technology Transfer and Advancement Act of 1995 (P.L. 104-113, March 7, 1996)

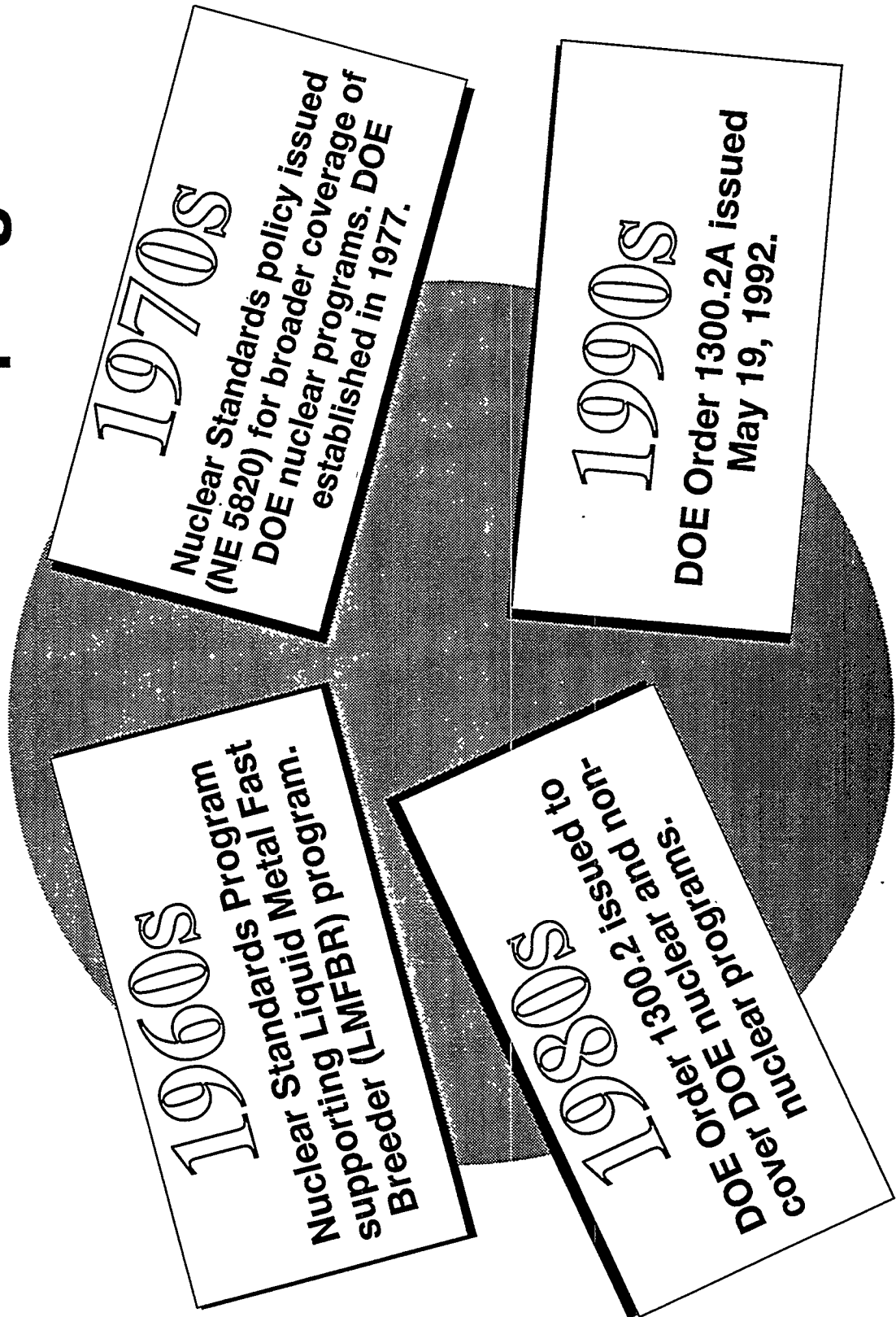
Requires Federal agencies to use voluntary standards to carry out policy objectives or activities

DOE Technical Standards Program

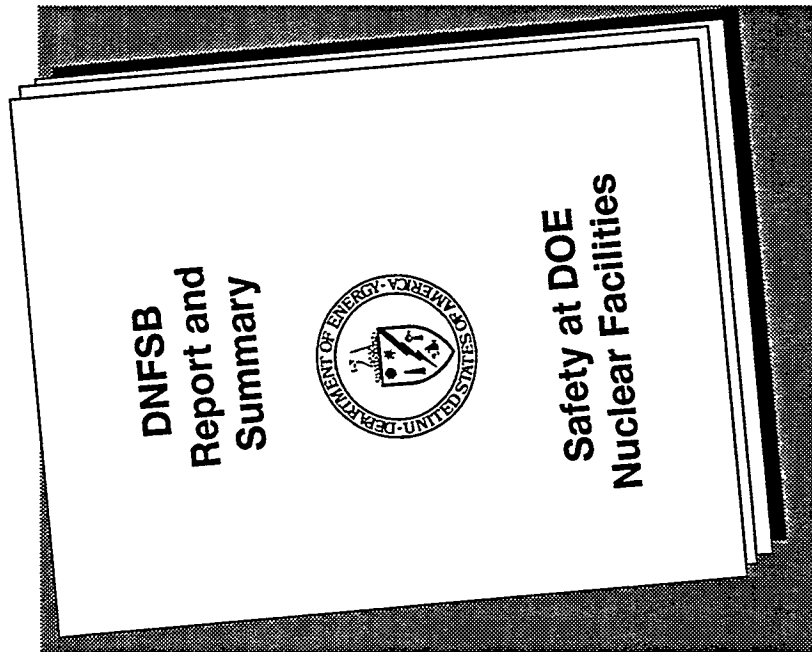
The Department Is Continuing its Transition From Expert-Based Operations to Standards-Based Operations



DOE has a long history with document standardization programs



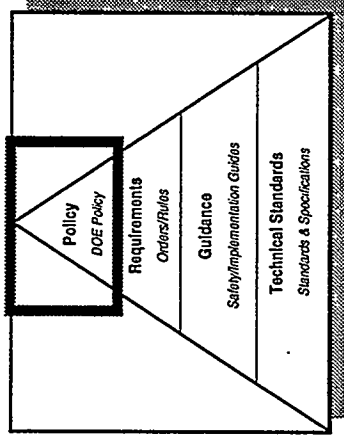
The Defense Nuclear Facilities Safety Board made the recommendation to...



...strengthen the system
of DOE documents

- *Policy*
- *Requirements*
- *Guidance*
- *Technical Standards*

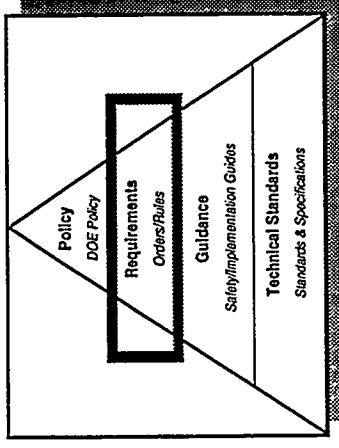
Documents Hierarchy



Policy documents describe the philosophy and fundamental values of the Department--the "why we do it" statements.

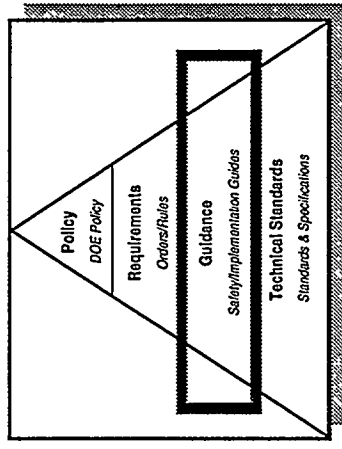
(All requirements and guidance flow from, and must be consistent with, policy.)

Documents Hierarchy



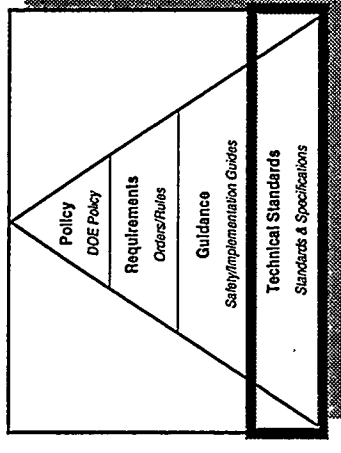
***Requirements Documents* such as Orders and Rules describe "what must be done." These Requirements Documents set expectations that must be met to ensure safe and reliable facility operations. They do not provide information on how to do work.**

Documents Hierarchy



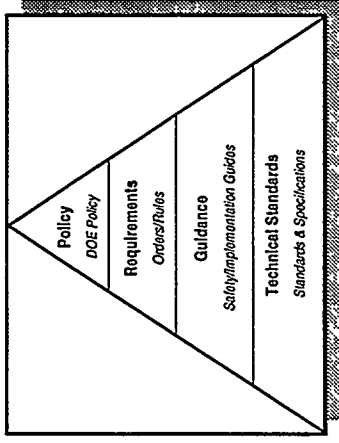
Safety and Implementation Guides provide general information and methodologies that DOE finds acceptable to meet the Department's requirements. In practice, the Safety and Implementation guides provide a link between the requirements and technical standards.

Safety and Implementation Guides



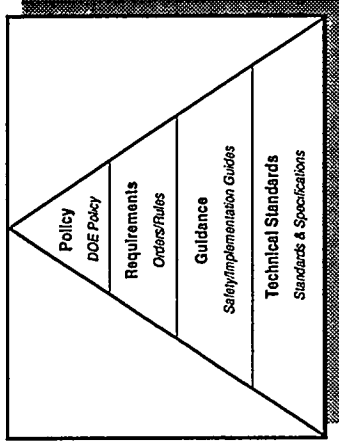
- Issued to guide contractors...
 - *on acceptable methods for implementing rules and orders*
 - *in delineating DOE's techniques for evaluating problems and events*
- **May reference technical standards**
- **Not substitutes for Rules or Orders**
- **Provide a bridge between Requirements and Technical Standards**

Documents Hierarchy



***Technical Standards* provide specific methods and techniques on "how to" implement the Department's requirements. Technical Standards are the foundation upon which the DOE documents hierarchy is based.**

**A technical standard
invoked in an order or
contract...**

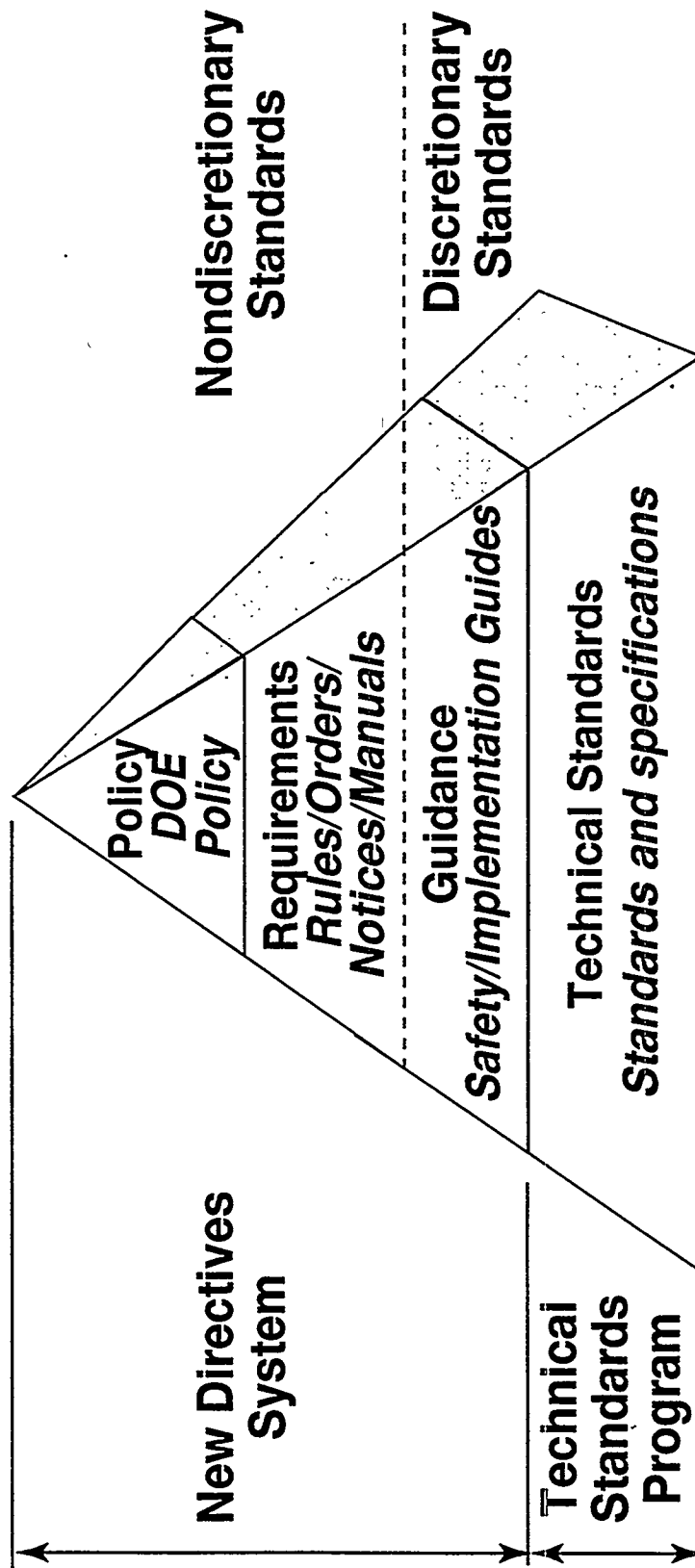


IS A REQUIREMENT

This means that the standard is mandated with the use of a "shall" statement. It is not a requirement if it is merely referenced in the document.



The Department Has Presented a Tiered, Structured System for the Definition of Requirements



The hierarchy of directives and related documents is viewed as a family of standards

Technical Standards are needed when...

- a. There are multiple applications of the process.**
- b. The product or technology is mature and stable.**
- c. The process is repetitive and lends itself to standardization (e.g., maintenance).**
- d. Application of the standard will result in improved economy of scale.**
- e. The standard provides information on how to implement Departmental requirements.**
- f. The standard contributes to the uniformity of facility operations.**

Two types of technical standards are described in the DOE Technical Standards Program

1

Non-Government Standards

IEEE, ASTM, ASME, etc.

2

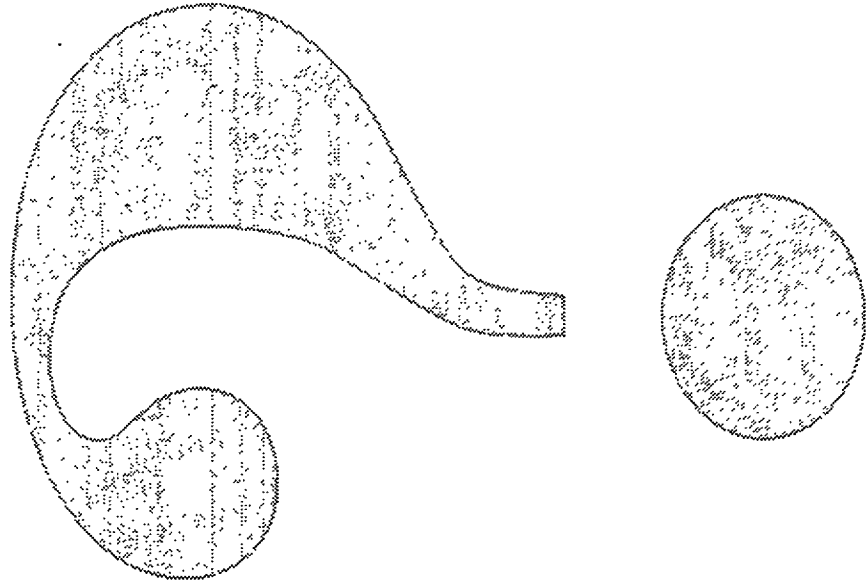
Government Standards

DOE, DoD, etc.

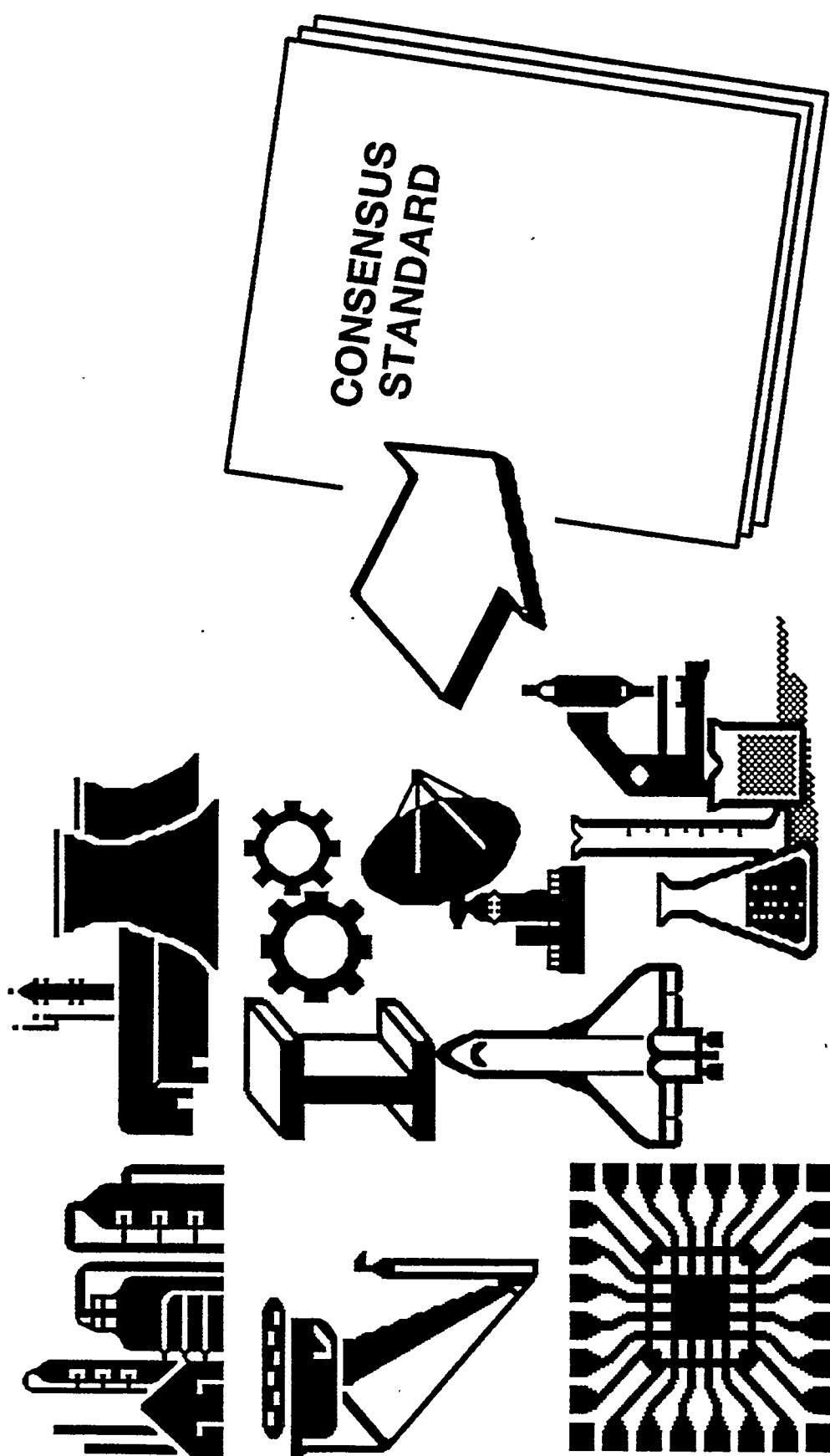
Non-Government Standards (NGSs)

- Those standards that are established by national and international consensus sector bodies
- NGSs are also referred to as "voluntary standards," "industry standards," "commercial standards," and "consensus standards"
- NGSs do not include professional standards of personal conduct, or private standards of individual firms, or of individual organizations for their internal use

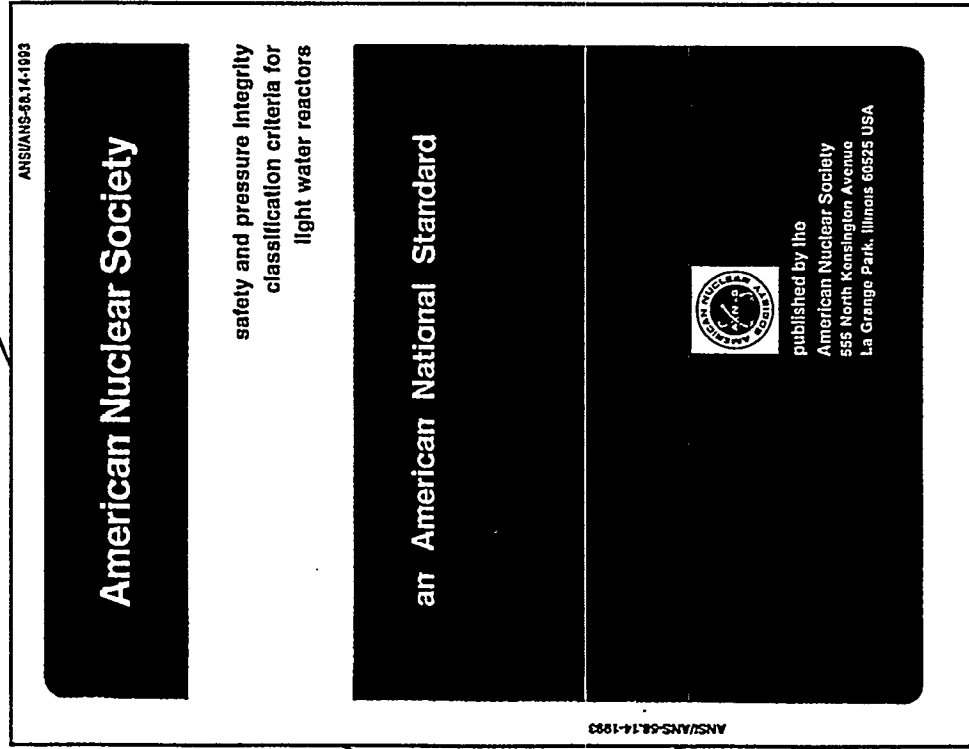
Why use non-Government standards?



**NGSs are proven solutions to problems
based on research & collective experience**



DOE uses NGSS either...



- *directly as acquisition documents*
- *as references in other documents*
- *as design or reference documents*
- *by excerpting direct language (with proper referencing)*

Adopting Non-Government Standards

- **Adoption: an "expression of acceptance...for use by DOE"**
- **Non-Government Technical Standards referenced in DOE directives are considered to be adopted.**
- **Adoption requires continuing DOE participation and review**

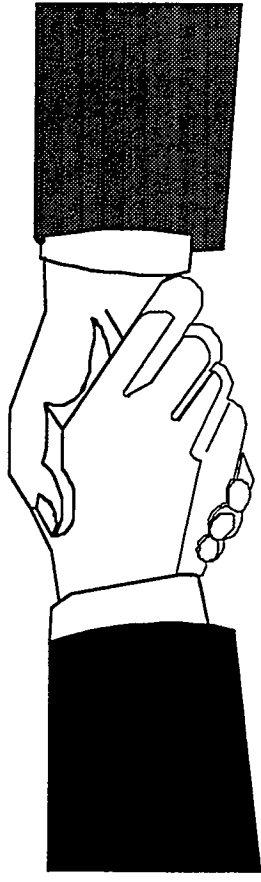
Participating in Non-Government Standards Bodies (NGSBs)

Guidance for participation in NGSBs (boards, committees, etc.) is found in TSPP-3 (paragraph 3)

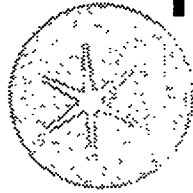
**"Interaction with
Non-Government
Standards Bodies"**

And is recorded on DOE form F 1300.2: *Record of Non-Government Standards Activity*

Why NGSBs want DOE participation....



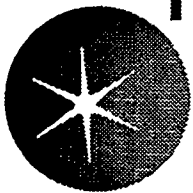
- 1. Provide balance to standards bodies (i.e., government representing user interests)**
- 2. Guarantee sales of standards**
- 3. "Prestige" of DOE usage promotes acceptance & provides greater "legitimacy" to standards**



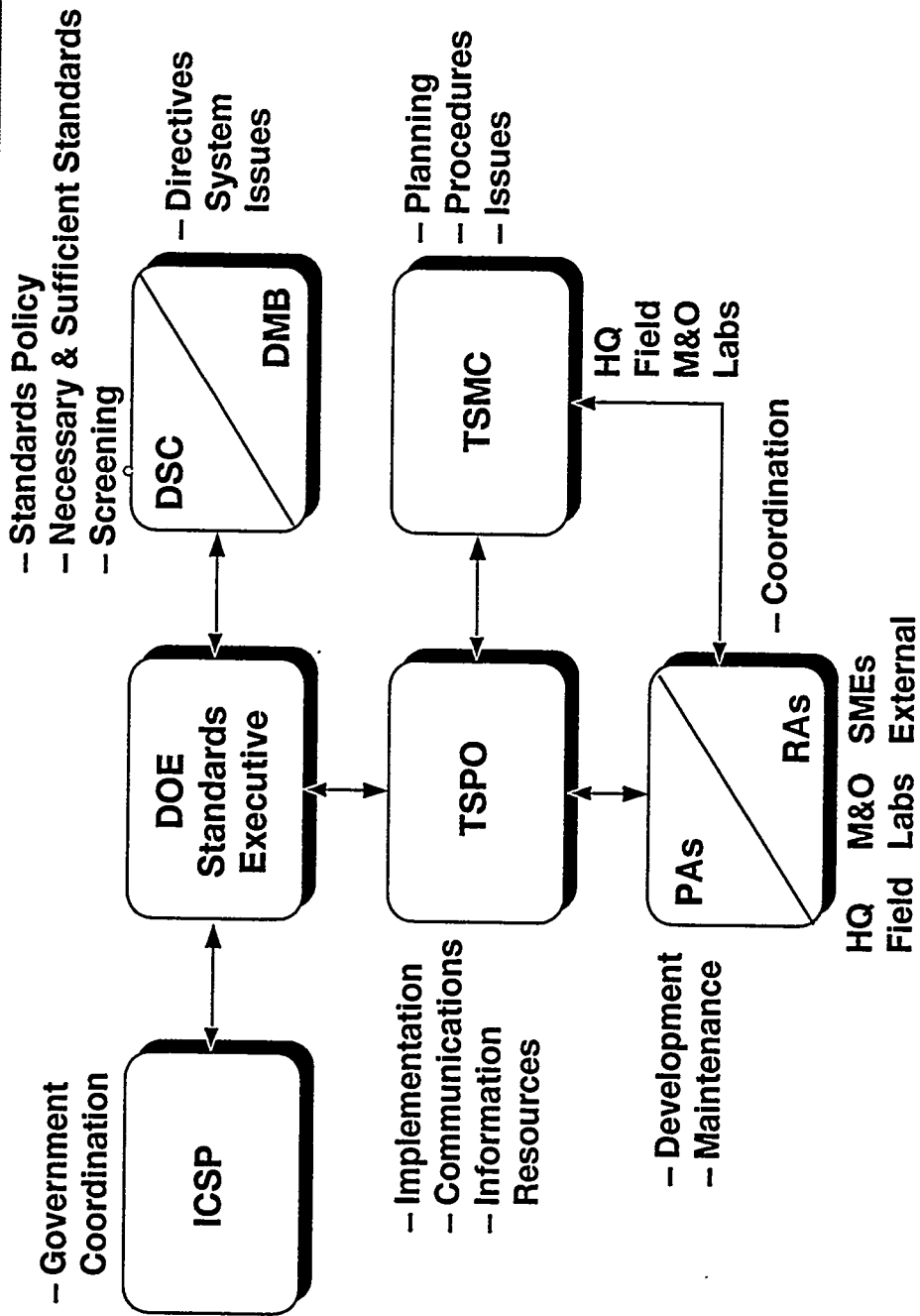
DOE Technical Standards Program

Objectives

- Promote the use of non-Government (voluntary) standards
- Manage conformance with public law and Federal policy
- Reflect Federal and national standards programs
- Conduct DOE's technical standards activities in an efficient and effective manner
- Provide consistency with the Department Standards Program and New Directives System



Technical Standards Program Interfaces



DMB – Directives Management Board
DSC – Department Standards Committee
ICSP – Interagency Committee on Standards Policy
PA – Preparing Activities
RA – Review Activities
TSMC – Technical Standards Managers' Committee
TSPO – Technical Standards Program Office

Technical Standards Program Office (TSPO)

- Rick Serbu, Manager, TSPO (EH-31)
(301) 903-2856 FAX: (301) 903-6172
Richard.Serbu@hq.doe.gov
- Jeffrey D. Feit, Assistant Manager, TSPO
(301) 903-3927 FAX: (301) 903-6172
Jeffrey.Feit@hq.doe.gov
- Donald J. Spellman, TSPO Staff, ORNL
(423) 574-7886 FAX: (423) 574-0382
SpellmanDJ@ornl.gov

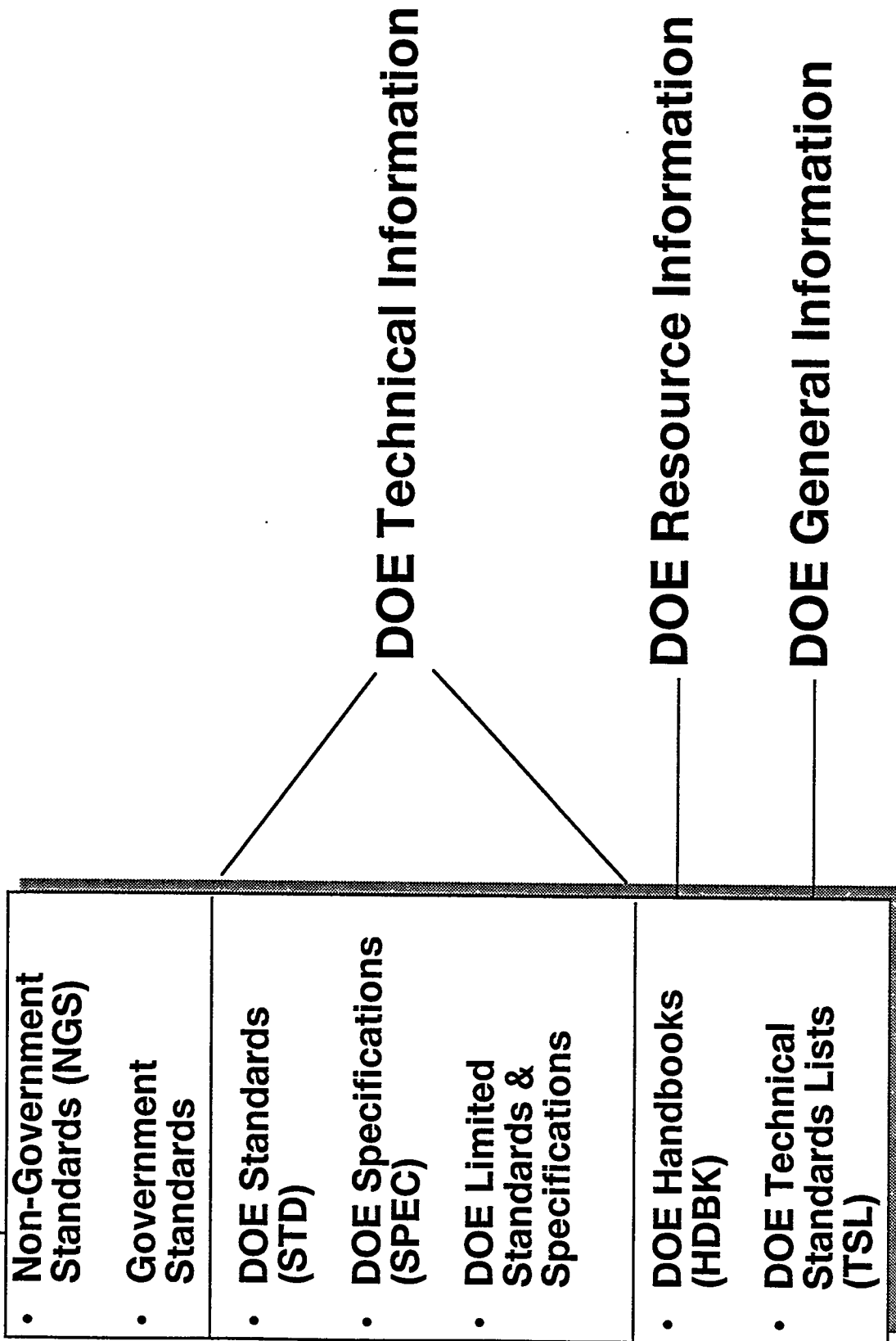
Each HQ and Field Office, and major site Contractor is represented by a Technical Standards Manager (TSM) who...

- **acts as a single point-of-contact for resource information**
- **works with the organizations to develop and maintain technical standards**
- **coordinates proposed technical standards and consolidates comments**

Technical Standards Managers' Committee (TSMC)

- **Provides a forum for discussing problem areas related to technical standards. Establishes appeals panels (composed of DOE members) to resolve problems.**
- **Provides assistance to DOE and contractor organizations during their development, review, and approval of proposed DOE Technical Standards.**

Types of Technical Standards



Consistent Format

The formats for DOE Technical Standards are fully compatible with:

- GSA-FSS FPMR 101-29 for Federal standardization documents
- MIL-STD-961 & MIL-STD-962 for military standardization documents
- ANSI Style Manual for Preparation of American National Standards
- The proposed ANSI/SES Standard for Standards, now being finalized

Department of Energy

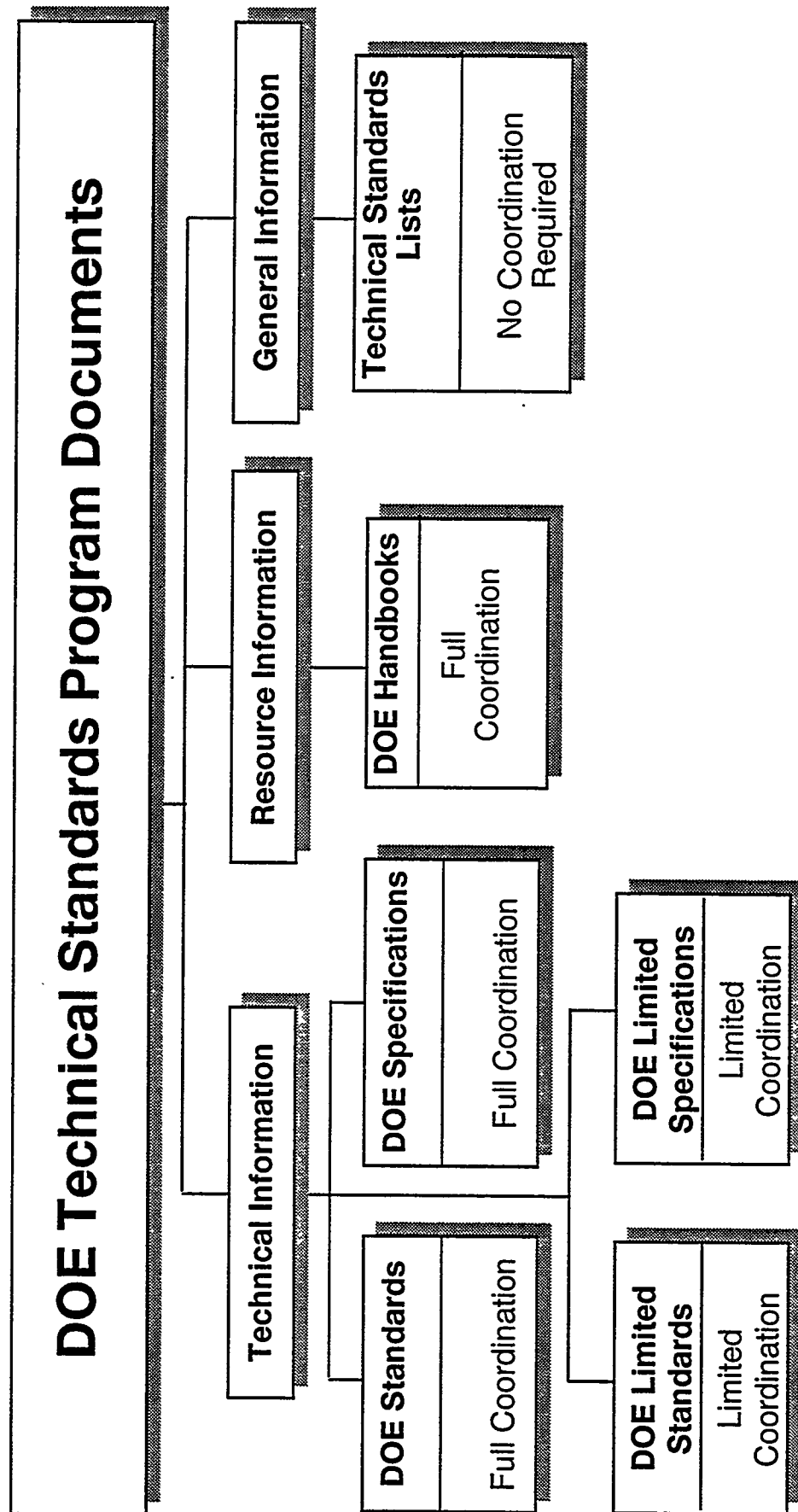
Technical Standards Program Procedures

DOE TSPP-1	Technical Standards Program Responsibilities
DOE TSPP-2	Establishing the Need for a Technical Standard
DOE TSPP-3	Use of Non-Government Standards and Interaction with Non-Government Standards Bodies
DOE TSPP-4	Registering a Technical Standard Project
DOE TSPP-5	Development of a New DOE Technical Standard
DOE TSPP-6	Coordination of DOE Technical Standard
DOE TSPP-7	DOE Technical Standards Comment Resolution
DOE TSPP-8	Approving and Issuing DOE Technical Standards
DOE TSPP-9	Maintenance of DOE Technical Standards
DOE TSPP-10	Conversion of DOE Technical Standards to Non-Government Standards

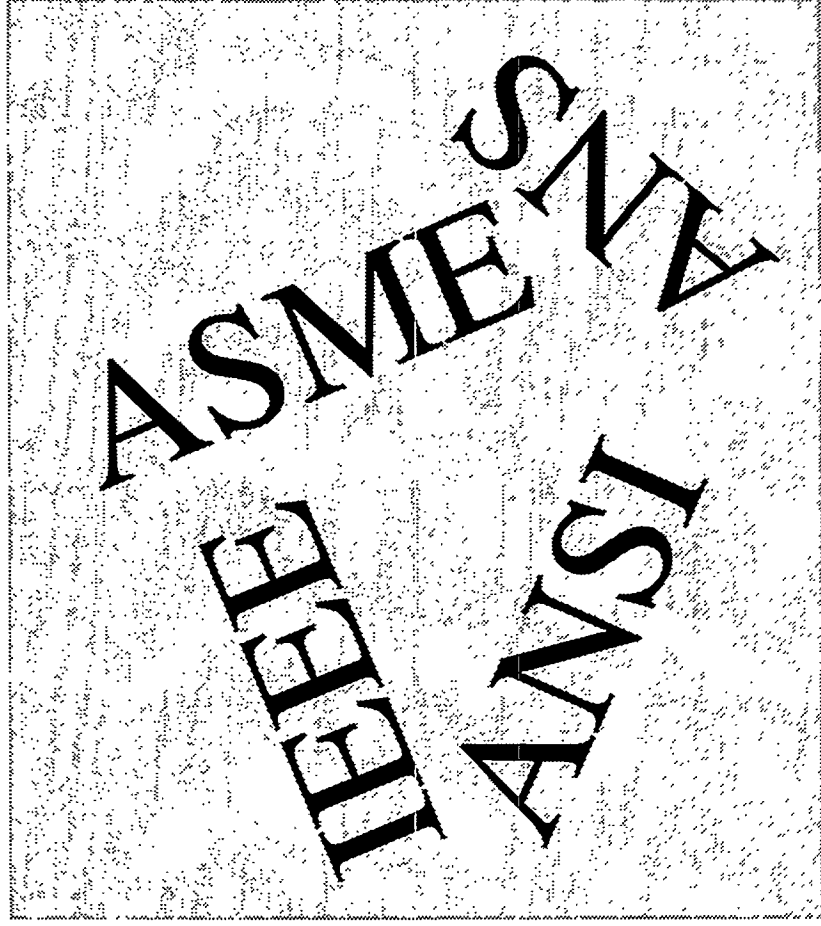
Assignment of Standards Project Numbers by TSPO

- **Assignment of project number indicates project initiation**
- **TSPO publishes information from the registration form in the "Standards Actions" newsletter to advise users of...**
 - **proposed new documents**
 - **documents in coordination**
 - **updates to existing documents, and**
 - **approved documents**

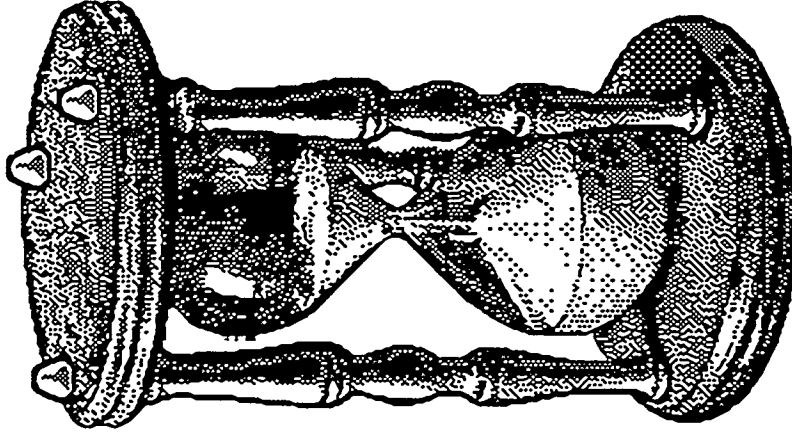
Coordination of DOE Technical Standards Program Documents



Coordinate DOE Technical Standards with industry, when appropriate



Normal Coordination Time



- 60 days
- Coordination time may be extended to accept late comments
- Coordination time may be reduced under urgent conditions

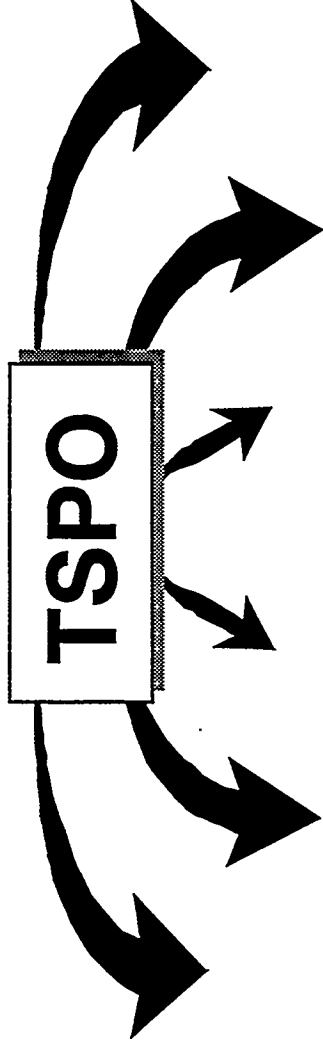
Monitoring Technical Standards Projects

- TSM & TSPO must see all coordination drafts
- TSM & TSPO monitor to ensure timely completion

Options for Maintaining DOE Technical Standards

- **Revision or change**
- **Reaffirmation**
- **Inactive for new design**
- **Cancel**
- **Reinstatement**

Distribution

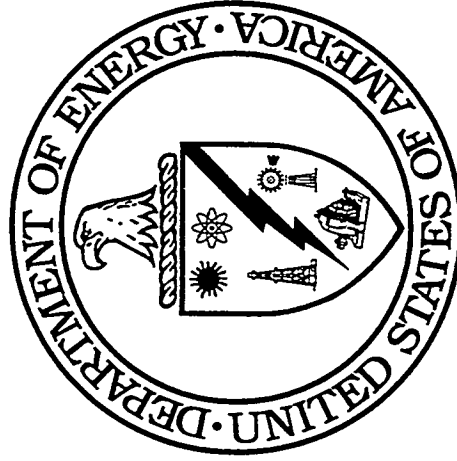


- **TSPO maintains and updates distribution lists based on input & requests**
- **Certain designated lists are maintained for automatic distribution**

**DOE Technical Standards
can be obtained from...**

OSTI

**US Department of Energy
Office of Scientific and
Technical Information
Oak Ridge, Tennessee**



- **Call OSTI at 423-576-8401 to order DOE Technical Standards**

***Federal & Military
standardization
documents are
available from...***



Defense Printing Service Detachment Office

ATTN: Customer Service

**700 Robbins Avenue, Bldg. 4D
Philadelphia, PA 19111-5094**

*(Call (215) 697-1187 if
you have an assigned
customer number)*

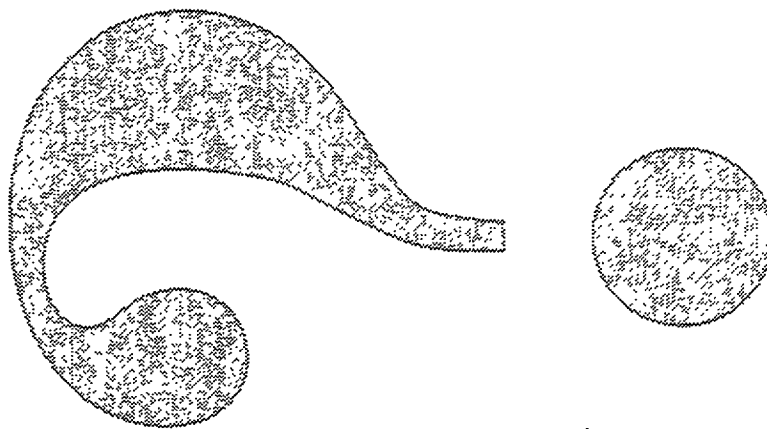
*For your first order call
(215) 697-2667 and
order Guide # 1*

Copies of Non-Government Standards are only distributed by NGSBs

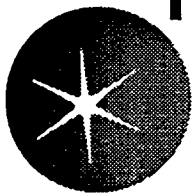


If you need copies of
non-Government standards,
write to the standards body
and get them for yourself.
Or go to the library and
get them through CD-ROM
or microfiche.

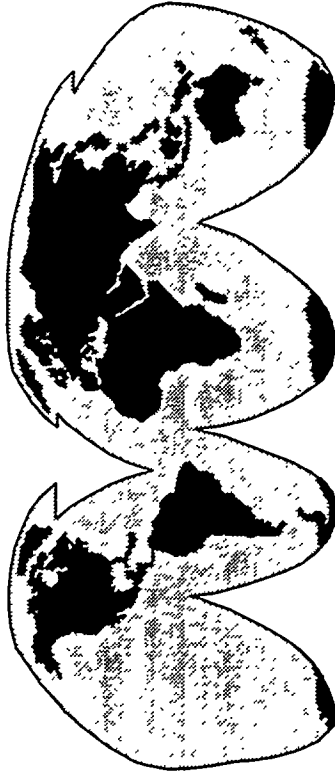
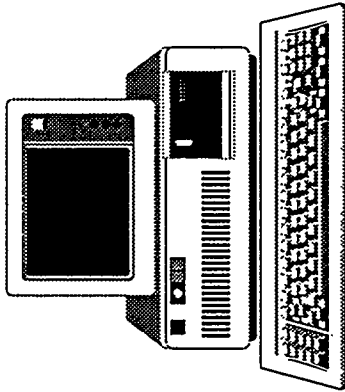
Most U.S. and international non-
Government standards may be
purchased from the American
National Standards Institute 11
West 42nd St.. 13th Floor New York,
NY 10036 (212) 642-4900



**How do you find out
which DOE and other
Technical Standards
are available?**



Worldwide Access to DOE Technical Standards Program Information Is Available Through Internet



URL Address: <http://apollo.osti.gov/html/techstds/techstds.html>

- Copies of DOE technical standards (can be word-searched and downloaded)
- DOE-TSL-1, *Department of Energy Standards Index*
- DOE-TSL-4, *Directory of DOE and Contractor Personnel Involved in Non-Government Standards Activities*
- Listing of designated Technical Standards Managers
- Recent issues of *The Standards Forum and Standards Actions*

You can find out about DOE and other Technical Standards by consulting...

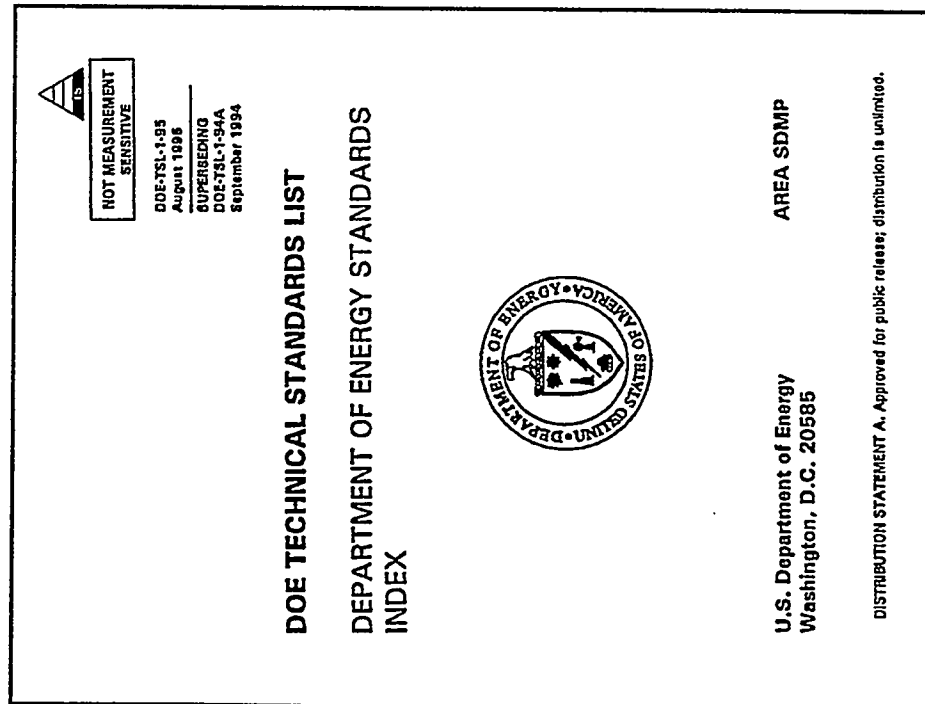
- **DOE-TSL-1: *DOE Standards Index***
- **TSIS (Technical Standards Information System)**
- ***DOE Standards Actions***
- **Commercial listings of Government and non-Government Technical Standards**
- **Your technical library**
- **the TSPO**

DOE Standards Index

- Index of all technical standards developed or adopted by DOE

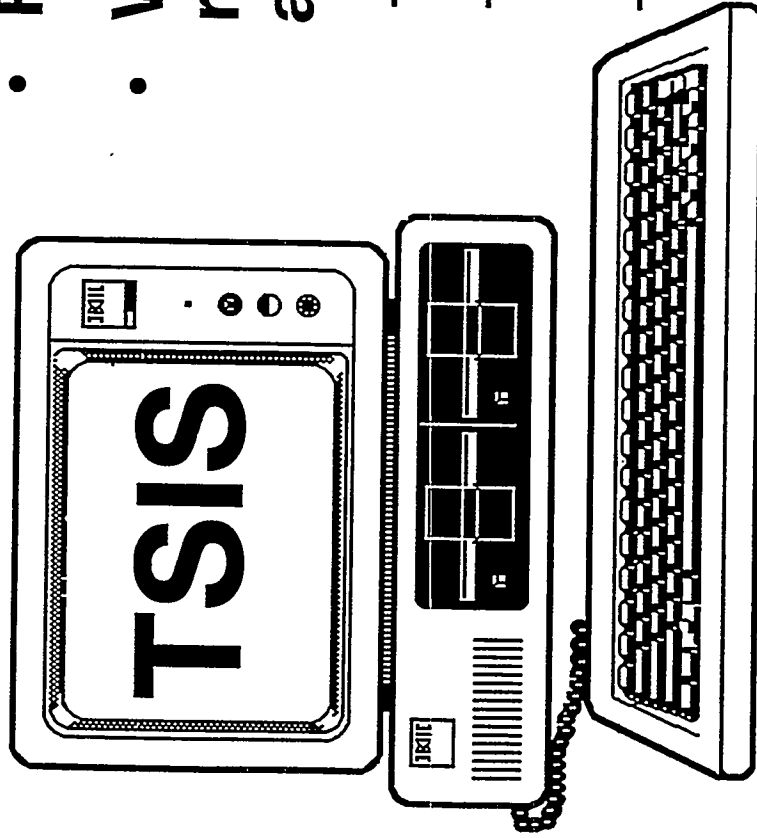
- Categories include...

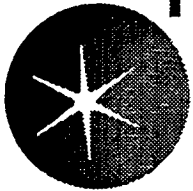
1. Active and inactive DOE Technical Standards
2. Non-Government Standards adopted by DOE
3. Other Government documents used by DOE as technical standards
4. Cancelled DOE Technical Standards



Technical Standards Information System (TSIS)

- Read-only database
- Wide variety of standards-related information is available including...
 - electronic version of DOE-TSL-1
 - current DOE technical standards projects
 - DOE participants in non-Government standards bodies (DOE-TSL-4)

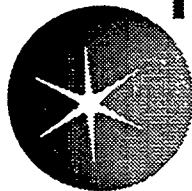




DOE Technical Standards Program

What the TSP Can Do For You

- **Provide information searches for listings of topically related standards**
- **Post your standards on the Internet**
- **Increase your management's awareness of standards and standardization activities of potential relevance to your work**
- **Provide pre-established guidance and electronic formats for authoring, coordinating, and maintaining DOE technical standards**
- **Identify personnel on voluntary standards bodies that can assist you in developing/revising voluntary standards to meet your needs**

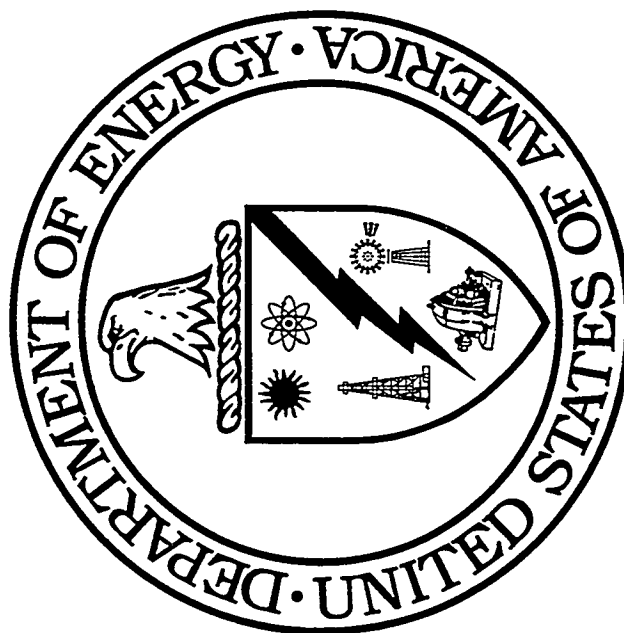


DOE Technical Standards Program

What You Can Do For the TSP

- Register your participation in voluntary standards activities
- Contact your Technical Standards Manager, confirm his/her support for your work, and schedule your participation in an upcoming site program briefing
- Register those products of our efforts that are “standards” and should be recognized under the DOE directives hierarchy
- Keep informed of current events in the world of standards through *Standards Actions* and *The Standards Forum*
- Attend a TSP workshop to learn more about standards and strategic standardization initiatives that may affect you
- Query the Technical Standards Home Page (OSTI WWW server) for program information
- Let us know how we can better support you and your organization

Summary



Technical standards

- help DOE to safely and reliably manage its facilities at reasonable cost
- make available to DOE the worldwide technologies of industries and governments
- provide a repository for international technical experience and knowledge

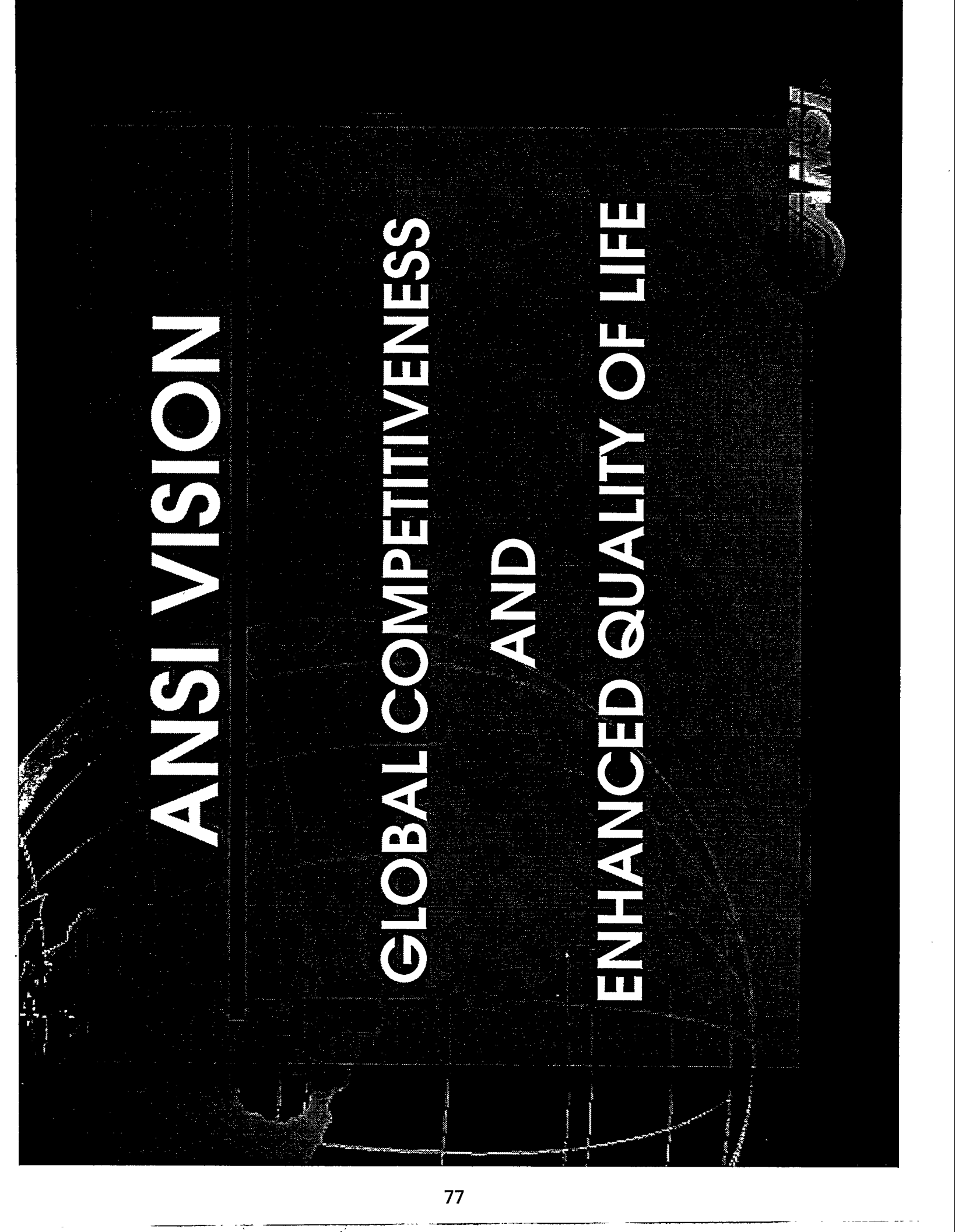
The DOE Technical Standards Program links DOE to the world of standards

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Wednesday, April 10

SPECIAL PRESENTATION

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ANSI VISION

GLOBAL COMPETITIVENESS AND ENHANCED QUALITY OF LIFE



MARKET FORCES OF THE 90's

- ◆ Globalization of markets
- ◆ Pervasive use of technology
- ◆ Regulatory and procurement reform



OPEN CONSENSUS STANDARDS

◆ Several strategic business benefits

- ◆ to participating in standards development
- ◆ to implementing standards
- ◆ to managing standards strategically



BENEFITS OF STANDARDS DEVELOPMENT PARTICIPATION

- ◆ Faster development of New Markets
- ◆ Market access for your technology
 - ◆ ANSI/ISO/IEC standards are de facto market requirements
 - ◆ regulators refer or adopt ANSI/ISO/IEC standards
- ◆ Obtain competitive information and future market trends
- ◆ Ensure interoperability of your product



BENEFITS OF STANDARDS DEVELOPMENT PARTICIPATION

- ◆ Competitive advantage through influence on content of standards
 - ◆ market leader image
 - ◆ minimize “time to market”
 - ◆ income from licensing technology
 - ◆ position as a low cost producer
 - ◆ understand how to implement the standards
- ◆ Minimize anti-trust liability exposure
- ◆ Minimize product liability exposure



BENEFITS OF IMPLEMENTING STANDARDS

- ◆ Market access and acceptance
- ◆ Reduced time and costs in product development cycle
 - ◆ focus on competitive advantages
 - ◆ faster time to market
- ◆ Reduced cost in component and materials acquisition
 - ◆ reduced administrative & inventory costs
 - ◆ greater range of sources



BENEFITS OF IMPLEMENTING STANDARDS

- ◆ Reduced facilities engineering, building and operating costs
- ◆ Reduced working capital in inventory
- ◆ Reduced cost of environmental and occupational regulatory compliance



STRATEGIC STANDARDIZATION MANAGEMENT

- ◆ Focus on sustainable competitive advantage
- ◆ Focus on value added differentiation
- ◆ Don't reinvent the wheel
- ◆ Ensure market place acceptance of your product



WHY HAVE AN ANSI?

- ◆ A focal point for national standardization policy
 - ◆ Technology and policy goals
 - ◆ Quality of life issues
 - ◆ Economic growth
- ◆ Leadership in international standardization is crucial to US. competitiveness



WHAT IS "ANSI"?

- ◆ A federation
- ◆ A mechanism for standards integrity
- ◆ A staff



THE ANSI FEDERATION:

- ◆ Public/Private sector partnership since 1918
- ◆ 1,250+ Member Companies:
 - ◆ Revenues of \$1.2+ trillion
- ◆ 280+ Professional, Trade, Educational, Consumer, and Labor institutions
- ◆ 40+ Government agencies



THE ANSI FEDERATION:

- ◆ ANSI's strength is the strength of its membership.
- ◆ ANSI's mandate is derived from its membership



MISSION STATEMENT

- ◆ Enhance both:
 - ◆ the global competitiveness of US. business
 - ◆ US. quality of life
- ◆ By:
 - ◆ promoting and facilitating voluntary consensus standards and conformity assessment systems, and
 - ◆ safeguarding their integrity

ANSI'S VALUE

- ◆ Policy forum
- ◆ Accreditor
- ◆ Source of information



VALUE AS A POLICY FORUM

- ◆ Facilitate US. standardization policy development
- ◆ Promote US. standardization policy globally



ANSI'S GOVERNANCE: Constituency Councils

BOARD OF
DIRECTORS

ORGANIZATION
MEMBER
COUNCIL

COMPANY
MEMBER
COUNCIL

GOVERNMENT
MEMBER
COUNCIL

CONSUMER
INTEREST
COUNCIL



ANSI'S GOVERNANCE: Operating Committees

- ◆ Propose policy to the board
 - ◆ E.g. Strategy and finances
- ◆ Implement board approved policy
 - ◆ E.g. Accreditation of Product certification and ISO 9000 and 14000 registrars
- ◆ Act on behalf of the board
 - ◆ E.g. Determine international policy positions and domestic appeals



DOMESTIC LEGISLATIVE POLICY

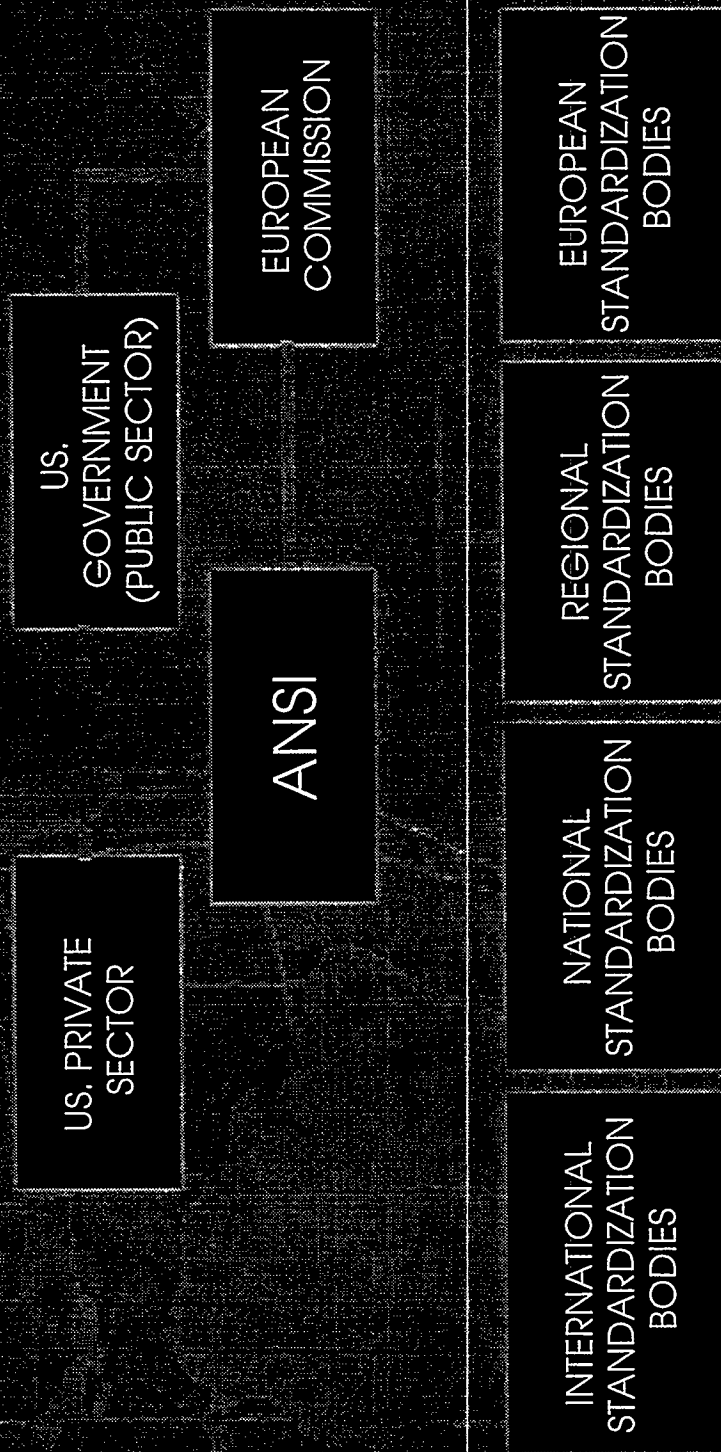
- ◆ 1995 Technology transfer act
- ◆ 1996 Telecommunications act
- ◆ ISO 14000 for state and federal EPA
- ◆ ISO XXXX for OSHA ???
- ◆ DoD and GSA procurement reform



PROMOTE US. STANDARDIZATION POLICIES GLOBALLY

- ◆ **GOAL:** Global standards that reflect US. interests
 - ◆ US. standards used abroad
 - ◆ US. positions (policy and technical) accepted in international and regional standards organizations.
 - ◆ International standards adopted as national standards where these meet the needs of the user community.

REPRESENTATION TO NON-TREATY STANDARDS ORGANIZATIONS



ANSI'S PARTNERSHIP WITH US GOV'T ON STANDARDS AND TRADE

◆ <u>ANSI</u>	<u>US GOV'T</u>
◆ ISO & IEC	WTO
◆ COPANT	FTAA
◆ PASC	APEC
◆ CEN/CENELEC/ETSI	TABD
◆ EOTC	US-EU MRAs



TECHNICAL BARRIERS TO TRADE

- ◆ DoC estimates \$30 billion exports lost
- ◆ USTR estimates \$1 billion = 20,000 jobs



ANSI PARTICIPATION AT ISO

- ◆ ISO - Geneva, Switzerland
 - ◆ 115 Member countries
- ◆ ANSI one of
 - ◆ 5 permanent members to the Council of 18
 - ◆ 6 permanent members to the Technical Management Board of 12
- ◆ ANSI and its members
 - ◆ participate in 74% of Technical Committees
 - ◆ administer 16% of TC Secretariats



ANSI PARTICIPATION AT IEC (THROUGH USNC)

- ◆ IEC - Geneva, Switzerland
 - ◆ 49 National Committees (Member Countries)
- ◆ USNC
 - ◆ one of 12 on Committee of Action
 - ◆ participates in 89% of Technical Committees
 - ◆ assigned Secretariats for 16% of TC Secretariats
 - ◆ Current president of IEC from the USA



ANSI AND JTC 1

- ◆ 57 Member Countries
- ◆ ANSI administers the JTC 1 Secretariat
 - ◆ 4 subcommittee Secretariats
 - ◆ 3 special group Secretariats
- ◆ 25% of ISO standards produced by JTC 1
- ◆ 35% of standards pages produced by JTC 1



VALUE AS A NATIONAL ACCREDITOR

- ◆ Accredited National Standards developers
- ◆ Accredited Conformity Assessment Programs
- ◆ Integrity of US International participation



ACCREDIT NATIONAL STANDARDS DEVELOPERS

- ◆ Provides for due process, openness, and consensus
- ◆ Minimizes conflict and duplication
- ◆ Reduces anti-trust and product liability exposure
- ◆ Maximizes market and regulatory acceptance
- ◆ Adds value to, and safeguards integrity of, American National Standards



ANSI CONFORMITY ASSESSMENT GOALS

- ◆ Promote and achieve global acceptance of products and services through conformity assessment activities that:
 - ◆ Employ supplier declarations and third-party assessments as appropriate.
 - ◆ Are based on ANSI/ISO/IEC Standards and Guides.
- ◆ Are achieved through tests or assessments performed one time, in one place (preferably at the site of choosing of the supplier).
- ◆ Are accomplished in the most cost-effective manner for all parties.



ANSI ACCREDITATION PROGRAMS

- ◆ Product certifiers
- ◆ ISO 9000 registrars (ANSI/RAB)
- ◆ ISO 14000 registrars
- ◆ ISO QSAR
- ◆ International Accreditation Forum
- ◆ Laboratory Accreditation Working Group



US INTERNATIONAL PARTICIPATION

- ◆ Accredited ISO technical advisory groups (TAGs)
- ◆ Appoint IEC technical advisors (TAs)
- ◆ Delegate TAG and US held international secretariat administration

US INTERNATIONAL PARTICIPATION cont'd

- ◆ Allows affected parties to participate in ISO or IEC standardization activities
- ◆ Provides for due process, openness, and consensus
- ◆ Ensures support of affected parties
- ◆ Ensures administration for TAG
- ◆ Ensures the integrity of the process

VALUE AS AN INFORMATION PROVIDER

- ◆ Standardization information
- ◆ Standardization education



PROVIDE STANDARDIZATION INFORMATION

- ◆ Standardization-related information on World Wide Web (<http://www.ansi.org>)
- ◆ Standardization-related research services
- ◆ Standardization-related publication sales
- ◆ ANSI Standards Action for public notice
- ◆ ANSI Reporter for news and editorial coverage
- ◆ National Standards Systems Network



STANDARDIZATION EDUCATION

- ◆ Promote use and value of standards
- ◆ Promote Strategic Standardization Management
- ◆ Provide information on courses on standardization
- ◆ Provide training on standardization participation, leadership, and administration.



STANDARDS INTEGRITY

- ◆ Open system
- ◆ Due process
 - ◆ Transparency
 - ◆ Appeals
- ◆ Consensus
- ◆ Enlightened self interest
- ◆ “State of the art” standards
- ◆ Availability of information



ANSI STAFF

- ◆ Member and Customer driven
- ◆ Facilitate, anticipate, respond
- ◆ Value and benefit of actions
- ◆ 120 people ready to serve



BENEFITS FOR ALL STAKEHOLDERS

- ◆ Companies
- ◆ Standard developers
- ◆ Government
- ◆ Consumers



SDO'S BENEFITS FROM ANSI

- ◆ Global relevance
- ◆ Self regulation
- ◆ Shared costs
- ◆ Reduced liability
- ◆ Reduced redundancy
- ◆ Market place acceptance of standards



CONSUMER'S BENEFITS FROM ANSI STANDARDS

- ◆ Greater selection
- ◆ Easier choices
- ◆ Better and consistent quality
- ◆ Lower costs
- ◆ Enhanced Safety & Health

GOVERNMENT BENEFITS FROM ANSI STANDARDS

- ◆ Lower costs
 - ◆ Procurement
 - ◆ Regulatory
- ◆ Private sector cooperation
- ◆ WTO compliance
- ◆ Economic growth
- ◆ Increased US competitiveness & employment
- ◆ Legislative conformance



THE REASONS WHY

- ◆ Economic growth
 - ◆ New markets
 - ◆ Market efficiencies
 - ◆ US. competitiveness
- ◆ Enhanced quality of life
 - ◆ Safety, health, and environment
 - ◆ Better and easier choices
 - ◆ Lower costs



BENEFITS OF COMPANY PARTICIPATION IN ANSI SDO

- ◆ ANSI Accredited Standards Developing Organizations
 - ◆ Trade associations, professional societies, laboratories and others
 - ◆ Support domestic and international committee work
- ◆ Market place influence through standards influence
- ◆ Source of market information



BENEFITS OF ANSI MEMBERSHIP

- ◆ Influence ANSI Federation policies
- ◆ Influence ISO/IEC policies
- ◆ ANSI is the bridge for standardization
 - ◆ between industry and government
 - ◆ between and within industries
- ◆ Ensure a level playing field for standards and conformity assessment



BENEFITS OF ANSI MEMBERSHIP

- ◆ Influence **WHAT** standards are written
WHERE
- ◆ A major source of information and expertise
 - ◆ Strategic Standardization Management
- ◆ If the private sector does not do it, the Government will
- ◆ If you don't do it, your competitors will

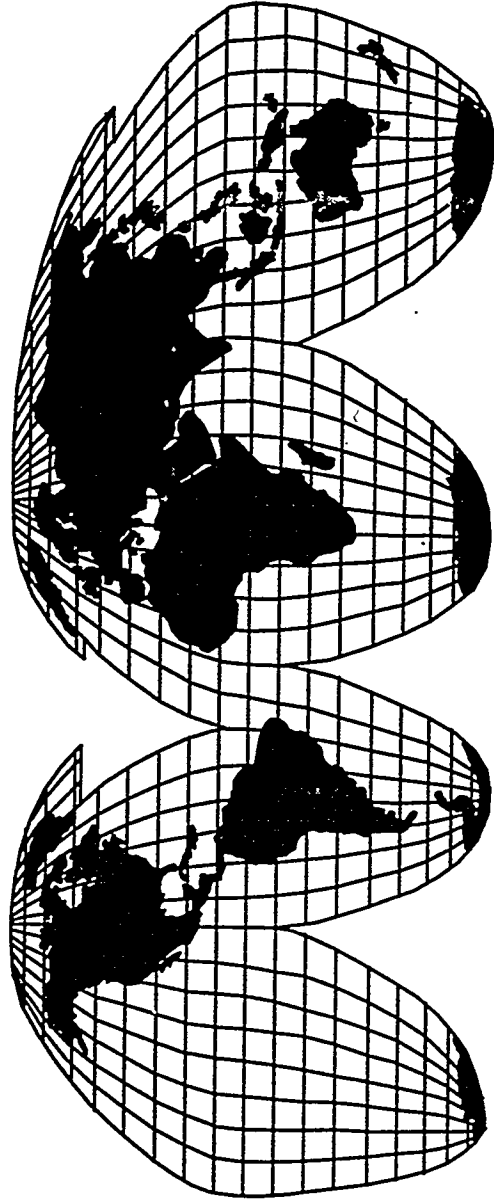
Thursday, April 11

SPECIAL PRESENTATION

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Strategic Standardization Management™

- A Strategic Management Discipline to Help Achieve Competitive Advantage



Department of Energy Strategic Standardization Initiative

By:

Robert J. Walsh
Director

Center for Strategic Standardization Management
American National Standards Institute
11 West 42 Street
New York, NY 10036
Phone: 212-642-8921
Fax: 212-398-0023
Email: bwalsh@ansi.org

Basic Premise:

Government is a collection of businesses that are run like businesses and are usually focused in the service sector.

Both are being dramatically changed by downsizing and are in that phenomenon, the same.

Center for Strategic Standardization Management™

- CSSM Objective
 - Develop an integrated program consisting of the processes, services and tools needed to realize the benefits of strategic standardization
- CSSM Consulting Services
 - Provide the continuity, leadership and integration to facilitate a company's transition through the program

Benefits (custom)

- Help reduce time to market
 - New innovations
 - Improved services
- Ability to anticipate and proactively manage “business” dynamics
- Reduce costs significantly

Benefits (custom)

- Strengthen a competitive position
(United States Infrastructure)
- Identify and help manage mega issues
- Ability to help integrate “business” unit strategies while maintaining “business” unit autonomy
- Identify new and strengthen existing Subject Matter Expert Networks
 - In government
 - Alliance with business

Benefits (custom)

- Managing change as an integrated, proactive function
- Leverage resources
- Increase efficiencies
- Partner with business

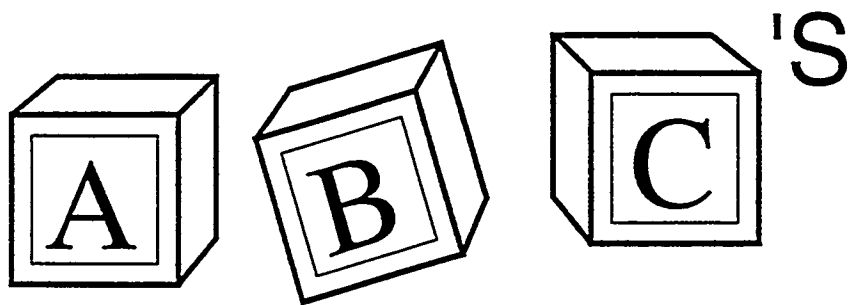
SSM™ ... An initiative by ANSI Company Members

- Why? - Identified as a major U.S. competitive weakness
- Solution? - Strategic Development Initiative
 - Customer Researched
 - Customer Developed
 - Customer Driven
- Strategic philosophy: “Business Helping Business™”
 - Today ‘s Government (the business - not policy)

ANSI Company Member Council

Executive Committee

ALCOA	Deere & Co.	Martin Marietta
AMP	Eastman Chemical Co.	Motorola
Ameritech	Eastman Kodak Co.	NYNEX Corp.
AT&T	Eaton Corp.	Storage Technology
Bausch & Lomb	Ford Motor Co.	Square D
Baxter Healthcare	General Motors Corp.	Sun Microsystems
Becton Dickinson & Co.	General Electric Co.	Texas Instruments
Boeing	Grace Specialty Chemicals	Unysis Corp.
Catepillar Inc.	Hewlett Packard Co.	United Technologies
Chevron Corp.	IBM Corp.	Vickers
Chrysler Corp.	3M Company	W. R. Grace & Co.



S

Standard

- Agreement

S

S.S.M.

- Methodology
- Process Tools
- Maximize the benefits of strategic standardization to gain competitive advantage.

What is Strategic Standardization Management?

- Strategic Standardization Management™ = SSM™
 - Management discipline;
 - Macro process;
 - Investigates potential benefits of standardization;
 - Across:
 - industry/corporation.

What is Strategic Standardization Management?

- Strategic Standardization Management™ = SSM™
 - Defines/recommends; and,
 - Implements prioritized;
 - Best in class;
 - Strategies;
 - Tactics.

Basic SSM® Operating Philosophy

- Identify Best in Class Corporations (Agencies)
- Identify and refine Best Practices
- Identify SME's (Subject Matter Experts)
- Develop SME Knowledge Competency Teams
- Zero Boundaries or walls in organizing teams
- Solution Set focus, not issue management
- Customer - U.S. Senior management
 - Corporation
 - Business Unit(s)
 - Government Agencies

Benefits

- Ability to help advance integrated corporate strategies and tactics (agency or parts of an agency)
- Ability to analyze, anticipate and influence market dynamics
- Ability to identify Subject Matter Experts (SME's) Networks and teams (across companies -- globally)

Benefits

- Ability to help reduce the time to market ...
 - new products and services
 - improved products and services
- More efficiently deal with mega issues
 - Industry Corporation Business Unit
 - Industry Agency Part of an Agency

Leadership Program (First Step)

Action:

- If your organization proactively searches for the best practices of World Class Companies ... then we recommend
 - Step 1 - Identify the right person(s) to take the next step: You?
 - Step 2 - Ask for an invitation to attend a Leadership Overview hosted by a company from the Center for Strategic Standardization Management (one day) ...

Leadership Program (First Step)

Action:

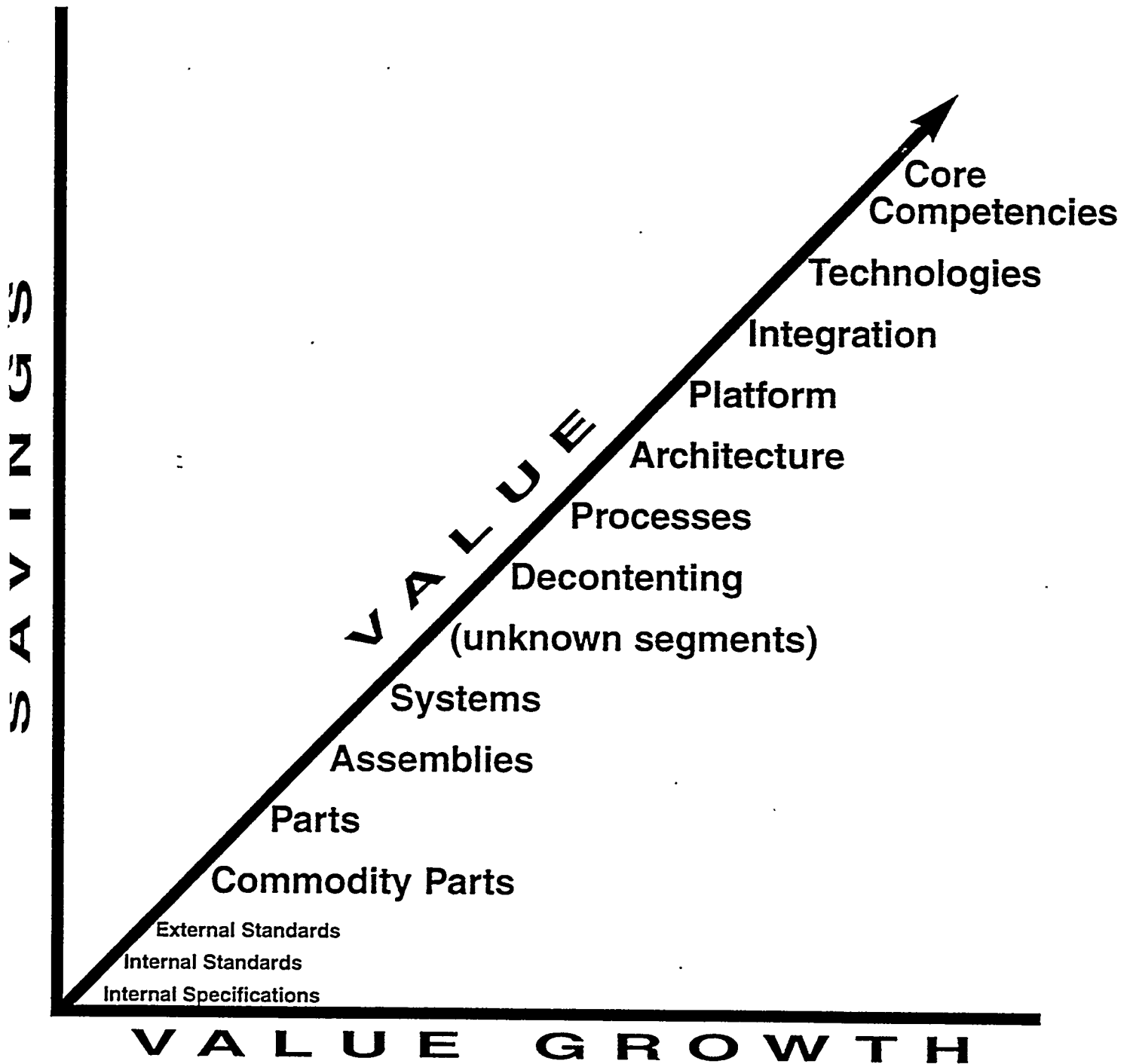
- Step 3 - Come away with the value added potential and how your company can gain competitive advantage by becoming involved.

Bottom Line

Principles, tools, and processes used are identical for government and corporations.

Strategic Standardization Management™

CSSM Value Strategy Tool™



What do I do?

Specific Process to be followed -- contact me at the end of the presentation for further information ...

**Bob Walsh
212- 642-8921**

Thursday, April 11

PANEL PRESENTATIONS:

**INTERAGENCY COMMITTEE ON
STANDARDS POLICY**

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The Interagency Committee on Standard Policy

Belinda L. Collins
Chairperson

Patrick Cooke
Executive Secretary

Office of Standards Services
National Institute of Standards and Technology

THE ENVIRONMENT

- o Strategic standardization, even for Federal Agencies, is not an oxymoron!**
- o Global competition has increased dramatically while the U.S. competitive advantage has declined somewhat.**
 - Assumptions that others must adopt our standards and buy our products are no longer valid.**
 - International standards being developed without adequate U.S. input or representation.**
- o We must develop a national strategy for broad private and public sector participation in the standards process, both at the domestic and international levels.**

What do we mean by Standards?

- o Includes product standards, as well as system and process standards such as quality and environment.**

- o Includes conformity assessment procedures such as**
 - Test methods, certification processes, and auditing procedures to allow others to assess product performance and demonstrate compliance with specified standards and regulations.**

Why Standards?

- o Standards facilitate commerce, safeguard the public's health, welfare, and safety, and protect the environment**
- o In the United States the standards process is primarily private sector and voluntary; led by industry with active participation by the government**
- o Better cooperation and communication is needed among the three players - standards organizations, industry, and government - to make this system work more effectively, and to fulfil our commitment to the World Trade Organization under the Technical Barriers to Trade Agreement**

GOVERNMENT'S ROLE

- o Use standards through purchase of products (DOD, GSA)**
- o Use standards through incorporation into federal regulations (FDA, DOE, CPSC)**
- o Provide the technical underpinning for standards (NIST)**
- o Promote international trade activities (ITA, USTR)**
- o Advocate for the U.S. national interest (ALL)**
- o The government must be a better partner in the whole standards process**

Standards in the United States: Lack of Coordinator

- o No universally recognized coordinating body in either the private or public sector**
 - ANSI is the U.S. member body to the International Organization for Standardization (ISO), but not recognized by all parties as a coordinating body for voluntary standards activities**
 - Although no single Government agency is responsible for developing and coordinating the standards policy of the Federal Government,**
 - NIST is charged with chairing the ICSP, and with coordinating with other Federal agencies under the new Technology Transfer Bill**

The International Scene

- o Most of other countries feature highly centralized standards systems, often government-supported and guided**
- o Chief among the drawbacks to a decentralized system in the United States is the perception that the United States lacks a single voice in the international arena**

Changing Roles of Government

- o OMB Circular A-119 (Federal Participation in Voluntary Standards) directs Federal Agencies to**
 - Participate in voluntary standards development activities—both domestic and international**
 - Reference international standards in procurement and regulatory applications**
 - Establish procedures to establish and represent agency views among agency representatives**
 - Ensure that when two or more agencies participate in standards, they coordinate their views and present a single unified position—or a joint statement of their mutual differences**

OMB Circular A-119

- o Directs the Secretary of Commerce, through NIST, to:**
 - Coordinate and foster executive branch implementation of standards policy, and**
 - Establish an interagency consultative mechanism to advise the Secretary and agency heads in implementing policy—the Interagency Committee on Standards Policy (ICSP)**
- o Most agencies have designated a Standards Executive, with direct access to the highest-decision making authority, to serve on the ICSP and to act as a focal point for monitoring and coordinating standards activities in the agency**

NIST and the ICSP

- o NIST has revitalized the ICSP to**
 - ensure coordination and cooperation among Federal agencies on standards issues, and**
 - develop policy for more effective coordination with the private sector**

- o Five ICSP working groups now in existence**
 - Directory Database**
 - ISO 9000 - GILQLP**
 - ISO 14,000 - EMS**
 - Laboratory Accreditation**
 - Strategic Standardization and Regulatory Issues**

- o Annual report prepared for OMB on Implementation of OMB Circular A-119 by the Federal Agencies**

Changing Federal Activities

- o U.S. agencies are increasingly relying on voluntary standards including international standards, such as the ISO 9000 series dealing with quality systems, to reduce procurement and administration costs**
 - New DOD procurement policy requires use of private sector standards and encourages DOD representatives to work to develop nongovernment standards**
- o Increased sensitivity to the international impact of testing and certification requirements as more foreign products enter the U.S. and vice versa**

Government Industry Quality Liasion Panel (GIQLP)

- o Public/Private working group**
- o Federal Agencies include DOD, NASA, DOT, GSA, DOC**
- o Private Trade associations or standards organizations include EIA, AIA, NSAI, ANSI (not companies)**
- o One quality system per facility, regardless of number of agencies**
 - Suppliers no longer need to maintain separate quality systems and processes for each federal agency**
- o Third-Party registration not required**
 - Option of agency - NASA and FAA require on some but not all contracts**

Technology Transfer Bill

PL 104-113

- o NIST will - coordinate Federal, State, and local technical standards activities and conformity assessment activities, with private sector technical standards activities and conformity assessment activities**
 - goal of eliminating unnecessary duplication and complexity in the development and promulgation of conformity assessment requirements and measures**
- o NIST will - transmit a Plan to Congress for implementing the amendments by June 1995**
- o Technical standards means performance-based or design-specific technical specifications and related management systems practices**

Technology Transfer Bill - continued

- o Use of Consensus Technical Standards means**
 - standards developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments**
 - Federal agencies and departments shall consult with voluntary, private sector, consensus standards bodies and shall, when such participation is in the public interest and is compatible with agency and departmental missions, authorities, priorities, and budget resources, participate with such bodies in the development of technical standards**

Technology Transfer Bill - Continued

- **Exception - If compliance is inconsistent with applicable law or otherwise impractical, a Federal agency or department may elect to use technical standards that are not developed or adopted by voluntary consensus standards bodies if the head of each such agency or department transmits to the Office of Management and Budget an explanation of the reasons for using such standards.**

- **Each year, beginning with fiscal year 1997, the Office of Management and Budget shall transmit to Congress and its committees a report summarizing all explanations received in the preceding year under this paragraph**

NIST Implementation

- o Preparing Plan for implementing Technology Transfer Bill**
- o Provided bill and requested comments from ICSP**
- o OMB Circular likely to be revised to facilitate ICSP activities and coordination on standards policy throughout the government**
- o Greater coordination with state and local entities needed**
- o NIST co-sponsoring Laboratory Accreditation Working Group to develop coordination on laboratory accreditation with the United States**

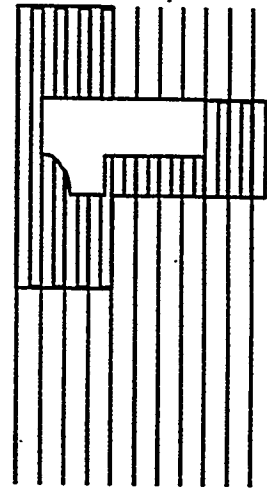
Conclusions

- o The private, voluntary standards system is the best approach for the U.S. economy**
- o Better cooperation and communication is needed among standards organizations, industry, and government**
- o Challenges for the Federal Government as a whole include working with the private sector to improve the current standards process. We must develop operating strategies to meet national interests more effectively.**
- o NIST is fully committed to strengthening ties with other government agencies and the private sector so that we can develop and implement a strategic standards process that truly meets the needs of industry, regulators, and standards developers.**

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TELECOMMUNICATIONS NETWORK STANDARDS:

A SUCCESSFUL PARTNERSHIP BETWEEN THE PUBLIC AND PRIVATE SECTORS



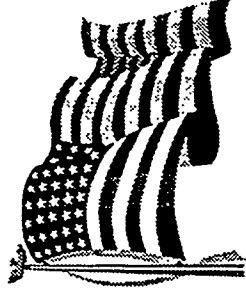
Arthur K. Reilly
Committee T1
April 11, 1996

areilly@notes.cc.bellcore.com

TELECOM NETWORK STANDARDS: PUBLIC/PRIVATE SECTOR PARTNERSHIP

Topics

- Benefits
- Committee T1 Role
- Roles of Government in Partnership
- Examples of Partnership



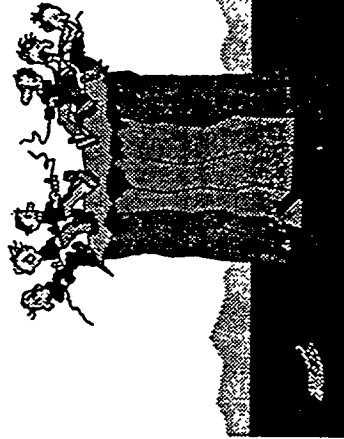
TELECOM NETWORK STANDARDS: PUBLIC/PRIVATE SECTOR PARTNERSHIP

Benefits



- Competition
- Innovation
- Free Trade
- User Needs Satisfied

Partnership can help address



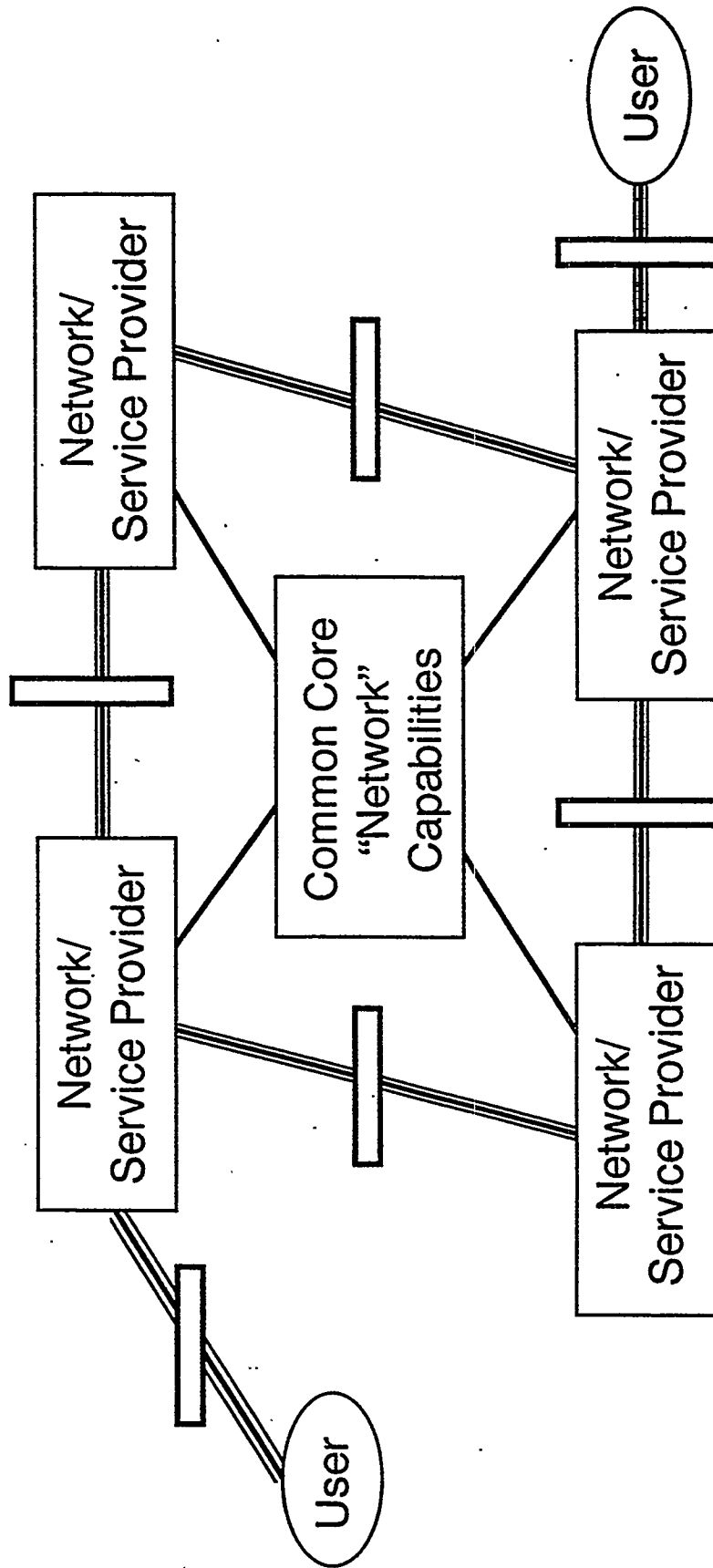
Non-Tariff
Trade Barriers

Negotiating Blocks
in other Regions

Proprietary-solutions

Regulatory delay

SAMPLE SUBSET OF U.S. "NETWORK OF NETWORKS"



TECHNICAL FOCUS AREAS

NII/GII

Broadband
ISDN/ATM/ADSL

Multimedia

Personal
Communications

Intelligent
Network

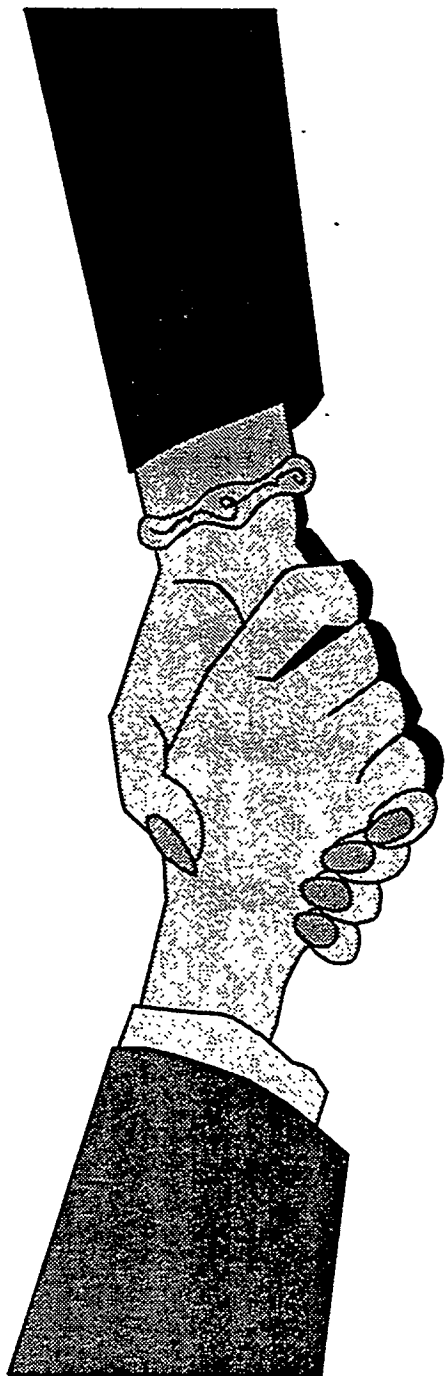
Synchronous
Optical
Network

Telecommunications
Management
Network

Network Reliability/
Survivability

Signalling
System #7

TELECOM NETWORK STANDARDS: PUBLIC/PRIVATE SECTOR PARTNERSHIP



Member

(User; Technical Expert)

Regulator

U.S. ITU Administrator

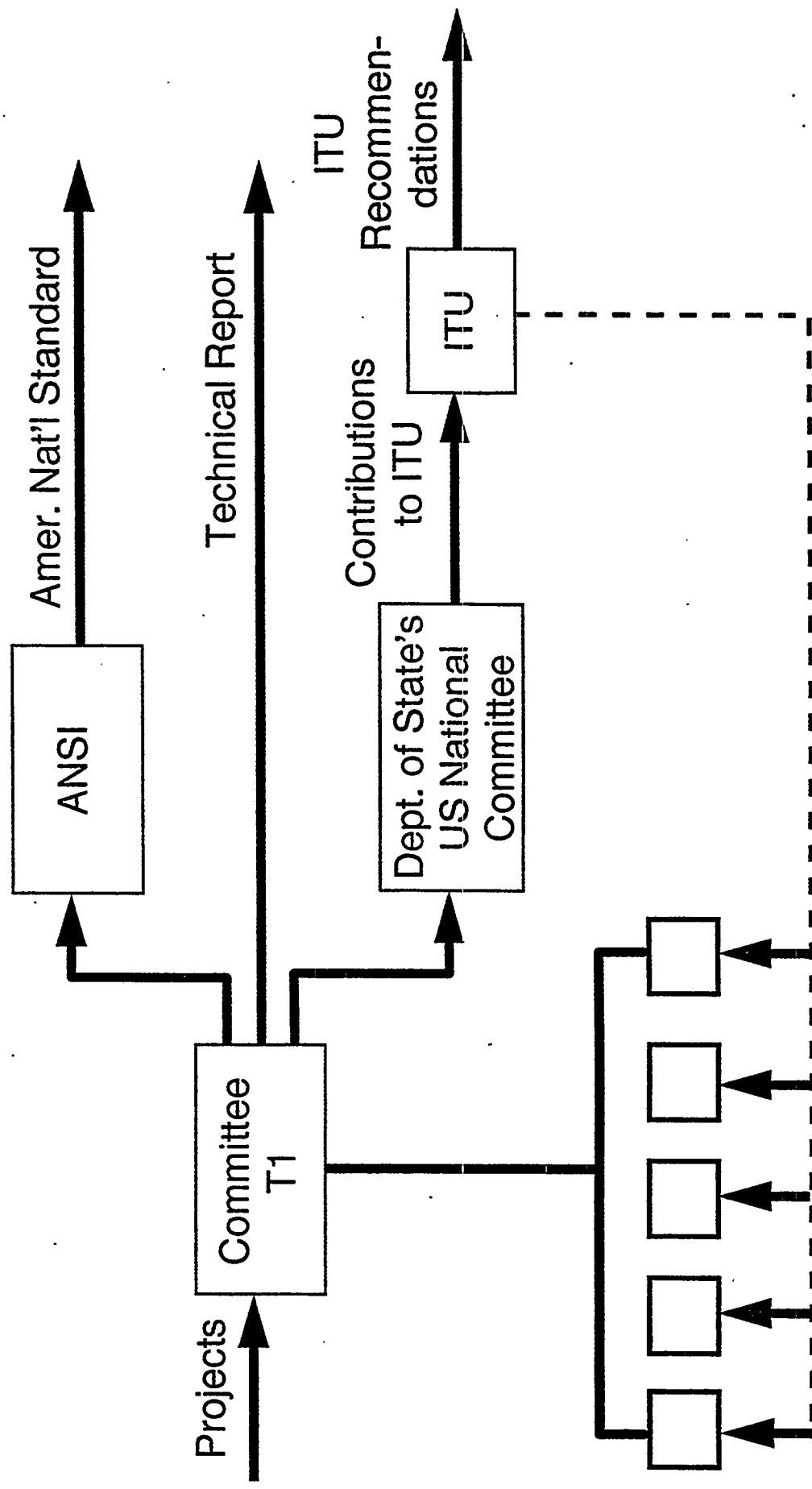
Trade Advocate

STRONG CONTRIBUTION TO AND FACILITATOR OF STANDARDIZATION

Examples Of Partnership In T1

- Strong Participation in Technical Standards Work Program
 - DoD/DISA
 - Asynchronous Transfer Mode (ATM)
 - NIST
 - Timing and Synchronization
 - Methods for Protocol Testing, e.g. ATM
 - Digital Performance - circuit, packet, ATM
 - NTIA
 - Video Objective Performance Measures
 - Network Reliability/Survivability
- NCS
- Successful Facilitation of Standards Implementation
 - NIST - ISDN (sponsored NIUF)
- Active Participation in Standards Administration
 - NTIA, DoD/DISA, NCS - T1 Advisory Group

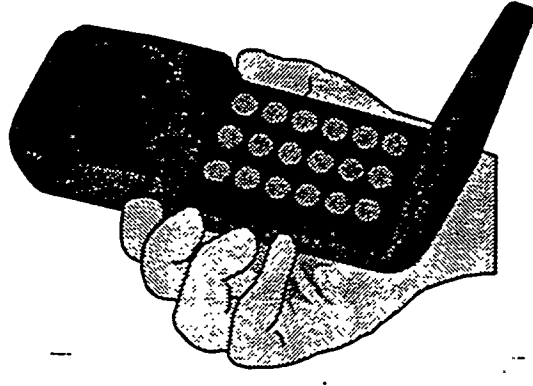
COMMITTEE T1 WORK FLOW



REGULATOR - FCC

Examples Of Partnership In Telecom

- Personal Communications Systems
 - FCC - Spectrum; Frequency Allocation, Auction
 - T1/TIA - Air Interface Standards (~8000 pages in 12 months)
 - T1- Mobility Management; Operations, Administration, Maintenance & Provisioning; Performance
- User Network Interface
 - FCC - Location
 - TIA - Harm to the Network Issues
 - T1 - Connectors, Protocols
- Network Reliability/Survivability
 - FCC - Network Reliability Council; Data Collection
 - T1 - Outage Index; NRSC - Quarterly/Annual Report



REGIONAL/GLOBAL TRADE ADVOCATE

Examples Of Partnership In Telecom

- North American Free Trade Agreement (NAFTA)
 - Telecommunications Standards SubCommittee (TSSC)
 - Consultative Committee Telecommunications (CCT)
 - Cellular Roaming
 - Network Standards
 - Principle: Minimize the Scope of Mandatory Standards



- Organization of American States (OAS) - Commission on InterAmerican Telecommunications (CITEL)
 - T1 Charter Associate Member of the Working Group on Standards Coordination
 - Summit of the Americas; Free Trade Area of the Americas

REGIONAL/GLOBAL TRADE ADVOCATE

Examples of Partnership in Telecom (contd.)

- Global

- Telecommunications Networks

- ITU-T

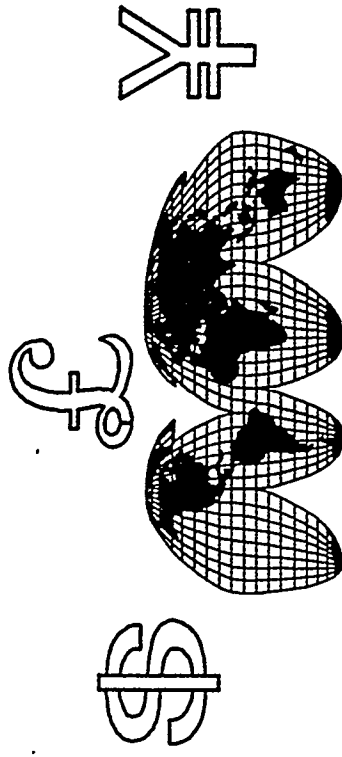
- Global Standards Collaboration (Australia, Canada, Europe, Japan, Korea, the U.S. plus ITU-T Director)

- Wireless

- ITU-R

- Future Advanced Mobile Universal Service (FAMOUS - Europe, Japan, the U.S.)

- Radio Standards (RAST - Australia, Canada, Europe, Japan, Korea, the U.S. plus the ITU-R Director)





UL'S CONFORMITY ASSESSMENT SERVICES

DOE Technical Standards Program
1996 Workshop

Consider the Needs and Objectives of:

OSHA

CPSC

EPA

DOE

DOD

GSA

HUD

Many Others

Dave Haataja

UL/GOVERNMENT COOPERATION

- ☐ Government Representation on UL's Engineering Councils
- ☐ UL Standards for Safety Reflect Federal Requirements
- ☐ Government Requiring Conformance to UL or Other 3rd Party Standards
- ☐ UL's Conversion of MIL Specs to UL Standards





UL'S CONFORMITY ASSESSMENT PROGRAMS

- ☐ EMC/EMI for FCC and FDA
- ☐ Marine Products for USCG
- ☐ Garage Door Openers for CPSC
- ☐ Workplace Safety for OSHA
- ☐ Refrigerant Recovery and Recycling Equipment for the EPA
- ☐ Energy Verification for the EPAAct



UL'S STANDARDIZATION ACTIVITIES

☐ DOD

☐ USCG

☐ CPSC

BENEFITS OF CONVERSION OF MIL SPECS TO UL STANDARDS

- ☐ Elimination of Expense to Maintain, Promote, and Distribute MIL Specs
- ☐ Lower Cost of Products
- ☐ Deletion of Outdated Military Specifications

Conformity Assessment of Standards Policies

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Thursday, April 11

PANEL PRESENTATIONS:

**DEPARTMENT STANDARDS
PROGRAM STATUS**

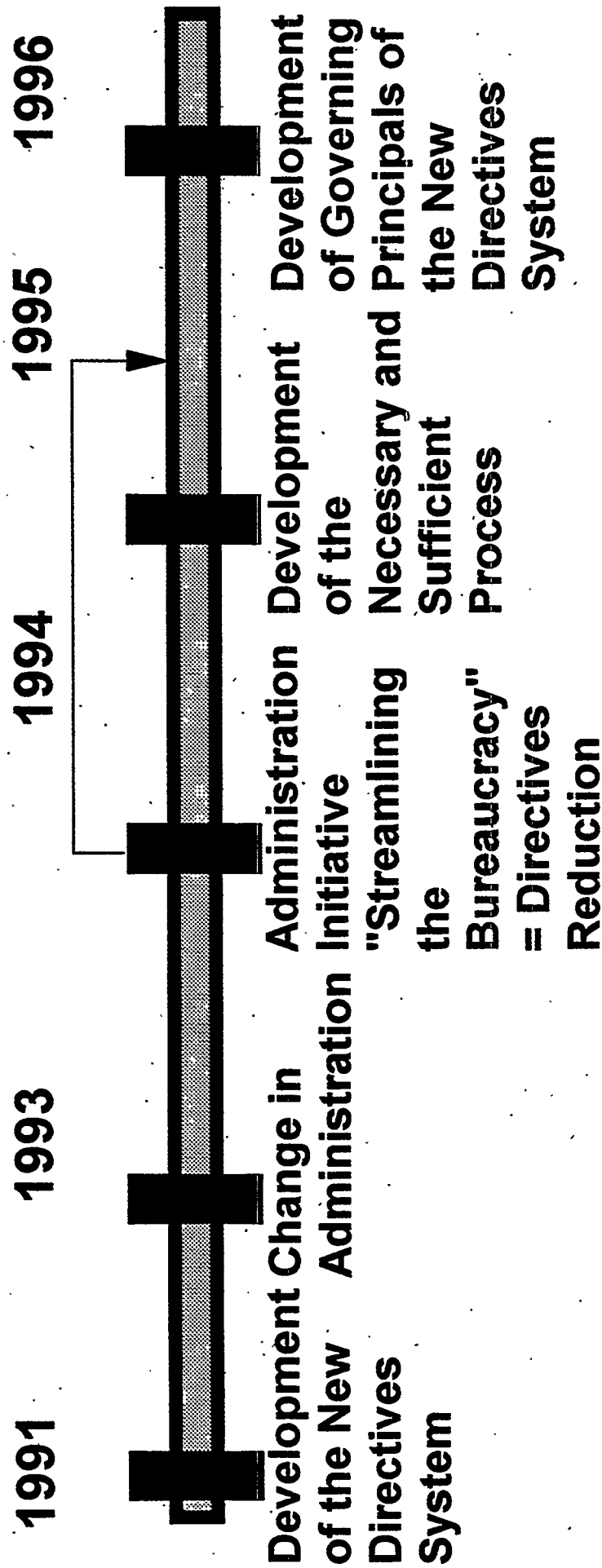
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DOE TECHNICAL STANDARDS PROGRAM - 1996 WORKSHOP

PRESENTATION BY MARCIA MORRIS

**DIRECTOR, OFFICE OF ORGANIZATION AND MANAGEMENT
U.S. DEPARTMENT OF ENERGY**

THE NEW DIRECTIVES SYSTEM AND THE NECESSARY AND SUFFICIENT PROCESS

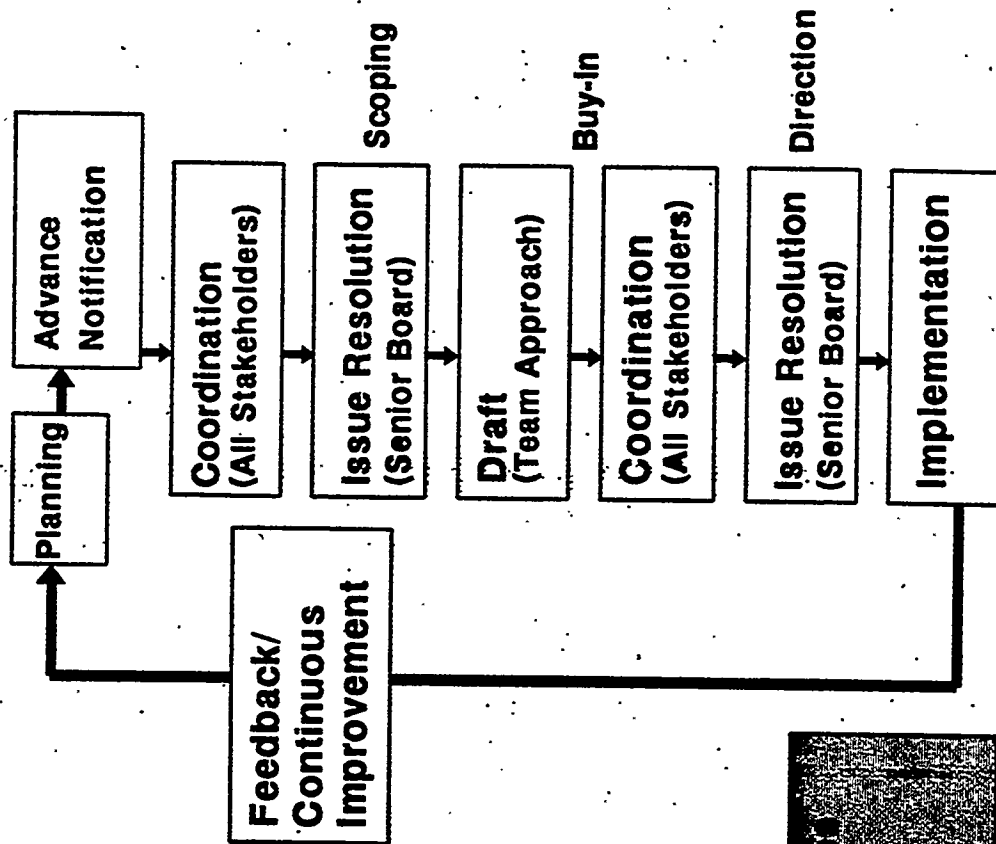


New System

Features

- Advance Notification
- Stakeholder Participation
- Teaming
- Consideration of Resources
- Senior Management Forum
- Use of Automation
- Sunset Review/Improvement

Process Flow



New System Addresses Entire Process
Development
Coordination
Implementation

DIRECTIVES REDUCTION

- **DECREASED THE NUMBER OF ORDERS BY 50%**
- **VALUE OF THE DIRECTIVES MANAGEMENT BOARD**
- **ELECTRONIC DISTRIBUTION/EXPANDED**
- COORDINATION**
- **CLARIFIED CONTRACTOR REQUIREMENTS**
- **SEPARATED REQUIREMENTS FROM GUIDANCE**
- **INITIATED SHIFT TO OUTCOME-ORIENTED RATHER**
- THAN PROCESS-ORIENTED DIRECTIVES**

COMPATIBLE CONCEPTS

NECESSARY AND SUFFICIENT PROCESS

■ BOTTOM-UP APPROACH
BUILD TEAMWORK, BUY-IN,
OWNERSHIP, ENERGY

■ FLEXIBLE - APPLIES TO SITES
FACILITIES, ACTIVITIES

■ INCREASED WORK EFFECTIVENESS,
REDUCED COSTS

NEW DIRECTIVES SYSTEM

■ FIELD M&O CONTRACTORS MUST BE
EFFECTIVELY INVOLVED/
INVOLVEMENT OF SENIOR
MANAGEMENT IN ALL SYSTEM PHASES

■ ALLOW FOR GRADED
APPROACH/FLEXIBILITY IN
IMPLEMENTATION

■ RESOURCE IMPACTS MUST BE
ADDRESSED

SCOPE OF NECESSARY AND SUFFICIENT

■ THE NECESSARY AND SUFFICIENT PROCESS APPLIES ONLY
TO ES&H AREAS

186 ■ SOME PILOTS ARE OPERATING OUTSIDE THE APPROVALS
GIVEN BY THE SECRETARY

■ DEVIATION FROM NON-ES&H ORDERS MUST FOLLOW THE
EXEMPTION PROCESS

FOR ASSISTANCE, PLEASE CALL JOANNE
WHITMAN (202) 586-6799

POLICY DIRECTIVE OUTLINING PRINCIPLES THAT GOVERN POLICY WRITING/DOE ORDERS

SAI 42/43

INTEGRATES AND COMPLIMENTS:

- **ORIGINAL REQUIREMENTS IDENTIFIED IN 1991**
- **ACTIVITIES SET FORTH IN DIRECTIVES REDUCTION
EFFORTS**
- **KEY FEATURES AND BENEFITS OF THE NECESSARY
AND SUFFICIENT PROCESS**

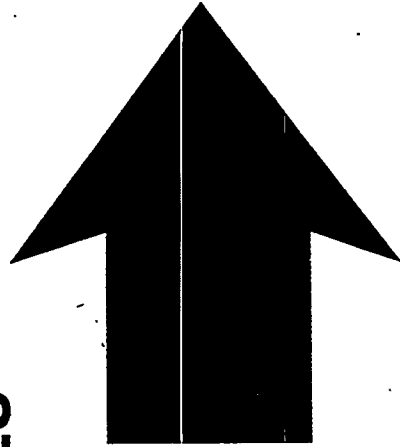
CONTINUOUS IMPROVEMENT

INITIATIVES

**NEW DIRECTIVES
SYSTEM**

N&S

SAI 42/43



- FULL PARTICIPATION
- FLEXIBLE IMPLEMENTATION
- ANALYSIS OF RESOURCE IMPACTS

3-19-96**SUBJECT: DIRECTIVES SYSTEM**

PURPOSE AND SCOPE

Directives provide formal and organized communication of the Department's expectations for performance of work within the DOE complex and include Policy Statements, Regulations, Orders, Notices, Manuals, Guides, and Technical Standards.

POLICY

The policy of the Department of Energy is to use a consistent and effective management system for the development, communication, implementation, and periodic review of its directives. All directives issued by the Department will be in accordance with the Department's mission, core values, and strategic plan, which provide the foundation for all activities of the Department. The following principles govern the Directives System:

1. The Department adopts National Consensus Standards and other commercial and industry standards where feasible and avoids duplication and unnecessary additions to external and internal requirements.
 2. Directives provide essential information that promotes safe, efficient, cost-effective, and secure operations and that supports the work performed by the Department.
 3. Directives, other than regulations and technical standards, are developed through the Directives System, which provides for full participation and input from all DOE organizations and other affected parties, and seeks, where possible, consensus among these interests. The consensus process shall not be used to impede the Department's legal obligations with respect to mission accomplishment, protection of health and safety of its workers and the public, protection of the environment, or national security. Although regulations are part of the Directives System, as a matter of law, they are developed through notice and public comment as required by the Administrative Procedure Act.
 4. All directives are applicable to Department employees. Requirements contained in directives other than regulations are applicable to Department contractors only to the extent provided in the relevant contract. Requirements contained in Department regulations are applicable to Department contractors to the extent provided by the terms of each regulation.
-

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Office of Human Resources
and Administration

5. Directives reflect the Headquarters' responsibility for program planning and direction and Field responsibility for program execution. Maximum flexibility is provided for implementation decisions. Implementation decisions are made at the appropriate level commensurate with the scope of work and the hazards.
6. Requirements contained in directives are expressed, to the extent possible, as performance objectives and expected outcomes. Guides and technical standards are limited to the identification of useful or acceptable methods for implementing directives' requirements and do not establish requirements or constitute the basis for a finding of noncompliance with a specific requirement.
7. Supplemental directives, for local use, are issued to address matters not covered by Department directives or to implement requirements contained in Department directives. Supplemental directives are consistent with Department directives; do not duplicate requirements in Department directives; and are issued only if necessary to promote safe, efficient, cost-effective, and secure operations.
8. Directives developed through the Directives System are periodically reviewed for applicability, accuracy, and continuing need at a frequency determined by the Directives System Manager. Lessons learned from the development, communication, and implementation of directives are shared among organizations and used as appropriate.

RESPONSIBILITIES

All Departmental Elements will follow the Directives System Order (DOE O 251.1) and Manual (DOE M 251.1-1) and will integrate the principles contained in this policy in the development of all documents intended to convey requirements or guidance to other organizations. Except for regulations and technical standards, the Directives System is managed by the Office of Human Resources and Administration, and resolution of issues on the content and extent of directives rests with the Directives Management Board. Development of regulations is managed by the Office of General Counsel and is subject to review by the Office of the Secretary. The Technical Standards Program is managed by the Office of Environment, Safety and Health.

BY ORDER OF THE SECRETARY OF ENERGY:



ARCHER L. DURHAM
Assistant Secretary for
Human Resources and Administration

Necessary and Sufficient Ideas from the Field

Implementing the Department Standards Program - on the road to common sense

Presentation of Rod McCullum
to the DOE Technical Standards Workshop
Panel on Department Standards Program Status
4/11/96

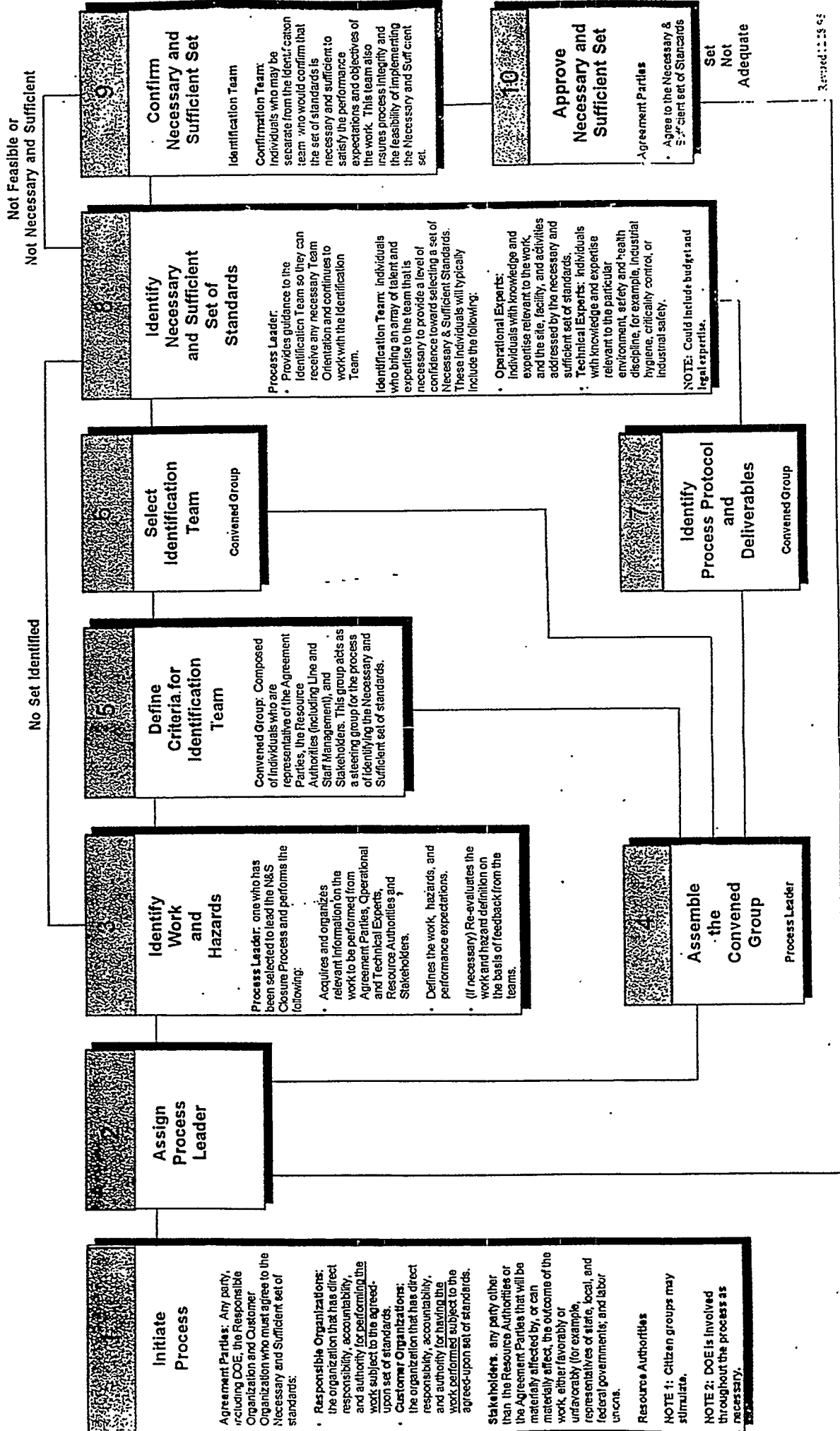
**The Necessary and Sufficient Closure Process
represents just 1 of 10 elements of the
Department Standards Program
(Criteria 6)**

Field experience with N&S

...on the road to common sense

- What have we accomplished with the Pilots?
- What have we learned from the Pilots?
- Where are we going with the Roll-out?
- How does all of this fit into the "Big Picture"?

Necessary and Sufficient Closure Process



N&S PROCESS GAINS

- **FOCUS ON WORK**
Veil of bureaucracy removed
- **OWNERSHIP**
Relationship of standards to safety clarified, worker involvement
- **PARTNERSHIP**
DOE and Contractors reaching agreement on adequate protection
- **GETTING OUTSIDE KNOWLEDGE - INSIDE**
Expertise shared in unique forum
- **UNDERSTANDING OF HAZARDS**
Better Hazards Analysis
- **SYNERGY WITH PERFORMANCE**
Supports DOE Performance Based Contracting initiative

Pilot Demonstrations of the N&S Process

1995

- FERMILAB
Site-wide ES&H standards for a large accelerator facility
- LOS ALAMOS NATIONAL LABORATORY
Radiation Protection Program
- LAWRENCE BERKELEY LABORATORY
National Tritium Labeling Facility
- SAVANNAH RIVER SITE
Groundwater Remediation
- ROCKY FLATS
Draining plutonium solutions from tanks in Building 371
- LAWRENCE LIVERMORE NATIONAL LABORATORY
Radioactive waste handling facilities
- KANSAS CITY PLANT
Occupational medicine program
- ARGONNE NATIONAL LABORATORY
CP-5 Reactor D&D
- HANFORD
Long term surveillance of REDOX facility

N&S Pilot Results

BERKELEY - Tritium Labeling Facility

- Stakeholder breakthrough
- Improved Safety Analysis
- Level playing field

FERMILAB - Accelerator

- 55 DOE Orders removed from contract
- Worker involvement in hazards assessment
- Improved attitudes & better understanding of requirements
- Resources shifted away from paperwork
- Local change control - DOE/Contractor partnership

SAVANNAH RIVER - Groundwater Remediation

- \$2.8 Million in cost savings
- Safety basis appropriate for job
- Streamlined change control

ARGONNE - CP-5 Reactor D&D

- Improved ability to deal with uncertainty
- Application of specific experience to specific hazards
- Move away from operating reactor approach to Safety Analysis
- Too late in project to make major impact ?

N&S Process Lessons Learned

(7 habits of effective standards identification)

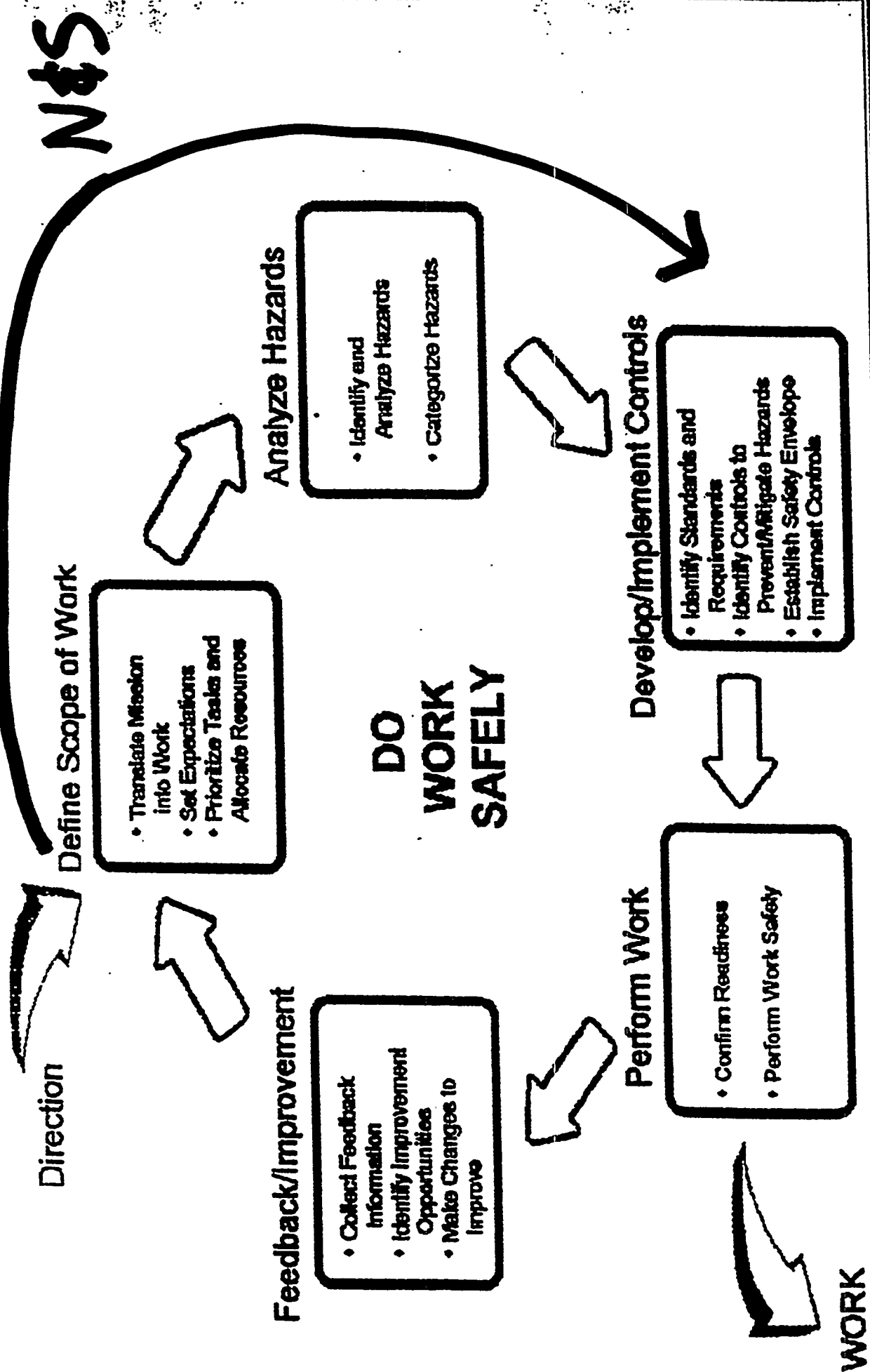
- Agree on agreement parties FIRST
(obtain upper management buy-in)
- Be inclusive early and often
(involve workers, peer labs., stakeholder, yes - even lawyers)
- Run for the border
(boundary/mgmt. systems issues should be addressed, not avoided)
- Think Big
(best to do sitewide N&S before individual facilities)
- Have a reason for doing it
(check initiation criteria)
- Begin with - and keep - the end in mind
(don't let protocols become burdensome)
- You're not done when your done
(living agreements, focus on implementation)

N&S Roll-out

...where are we going

- Extensive Field & Line Management involvement in Roll-out planning
- Secretary Approved N&S Policy Statement 1/25/95
- Roll-out plan encompassed in DOE N 450.3
 - Decisions by Management Teamwork
 - Management Training Required
 - Transition Guidance
 - Staged implementation
 - Prioritization - allocation of resources
- Lessons learned to be incorporated into process description (DOE M 450.3), comments not due until August

Safety Management Functions



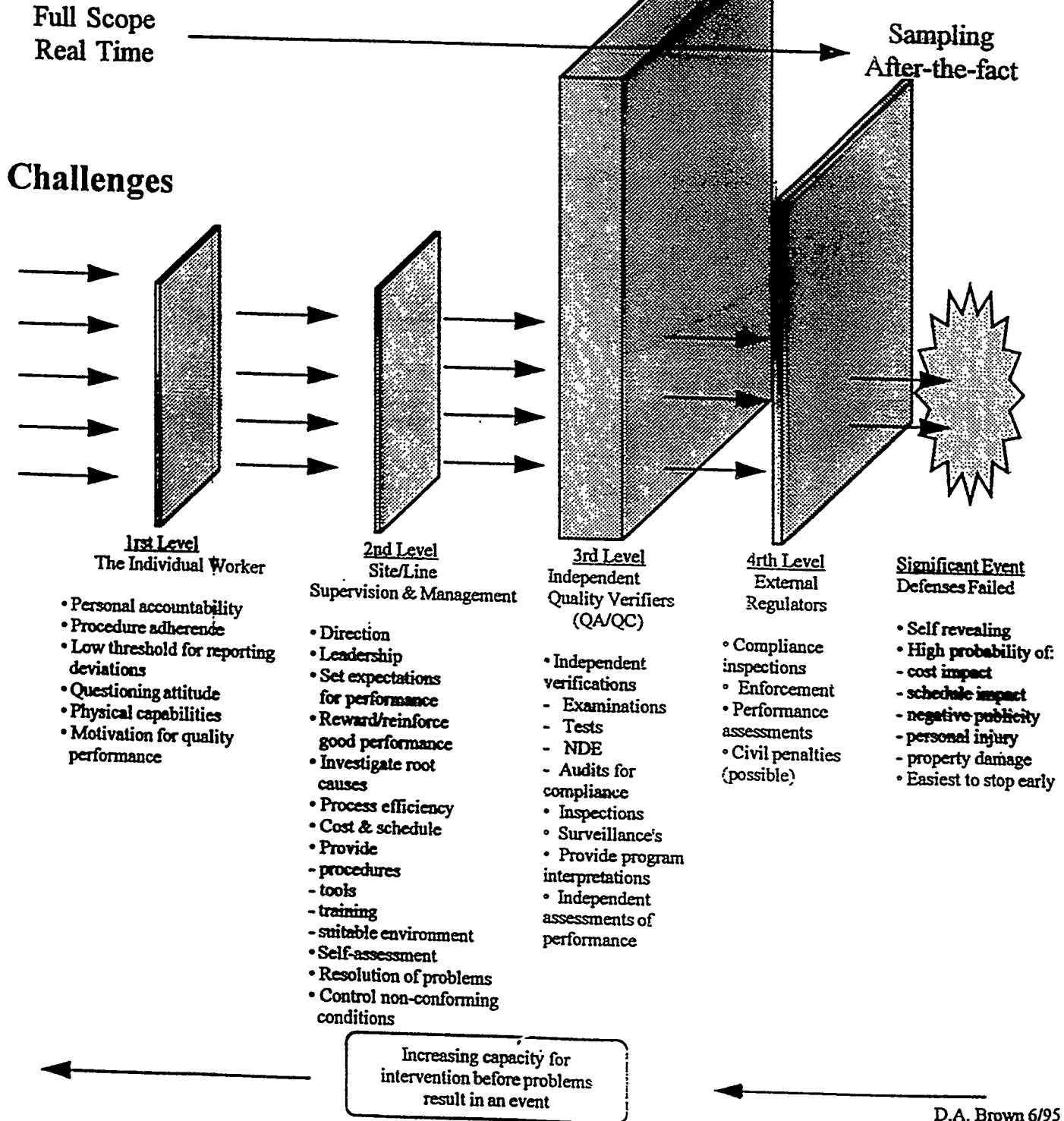
THE BIG PICTURE

Defense-In-Depth Quality Model

FIGURE 1

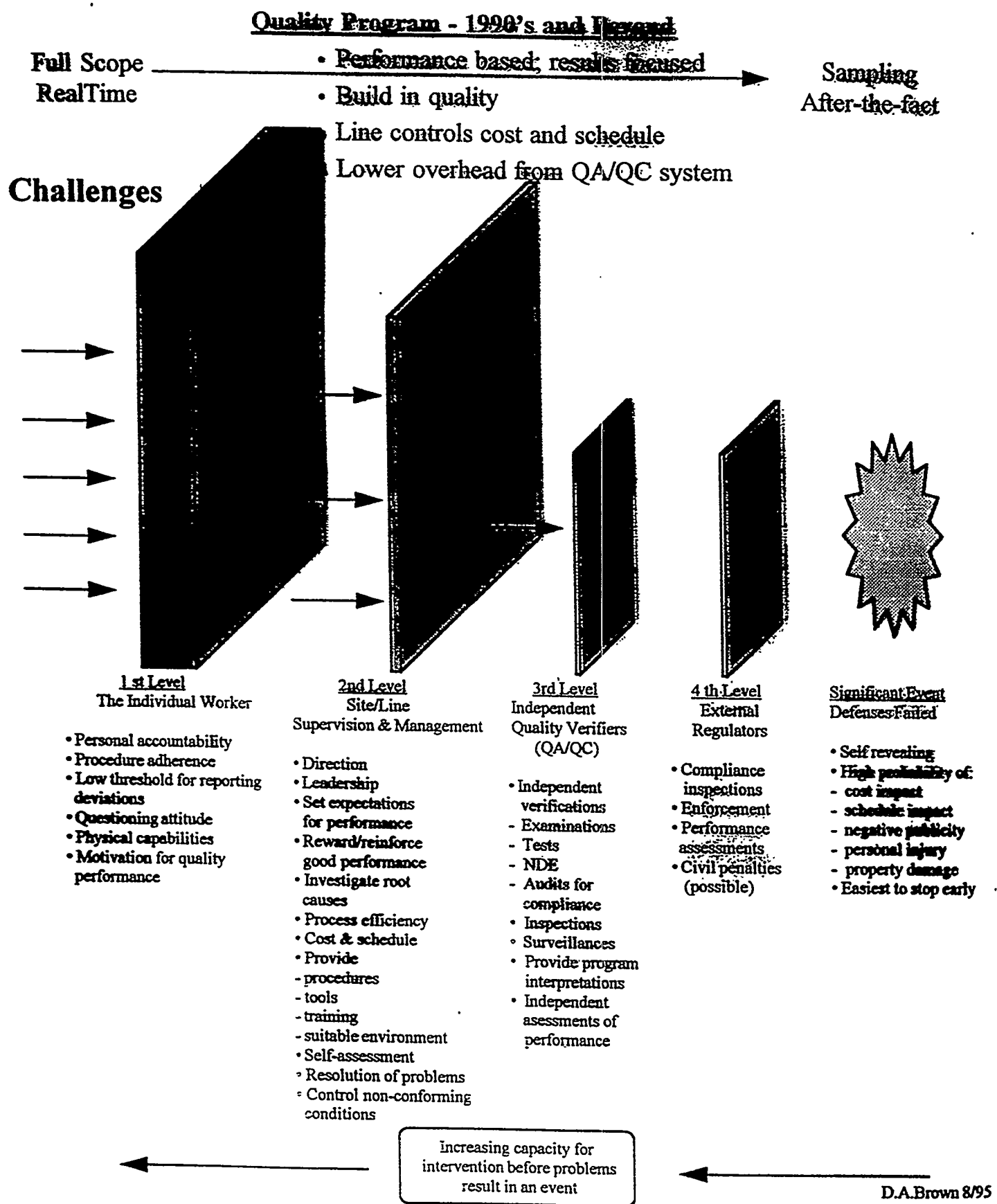
Typical 1970's- 1980's Quality Program

- Compliance based
- "Inspect-in" Quality
- High cost & rework rate
- Slow progress
- High overhead (QA/QC)

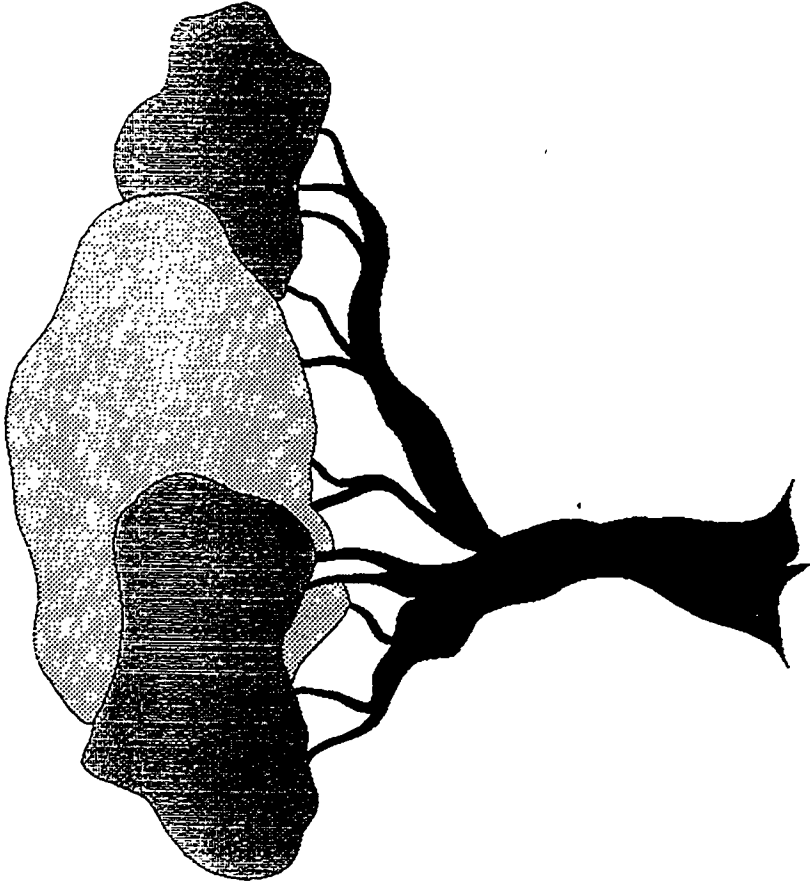


Defense-In-Depth Quality Model

FIGURE 2



A set of standards by itself is nothing more than
a well processed collection of dead trees

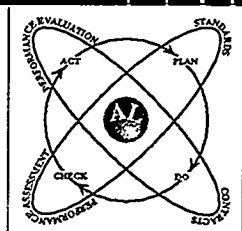


N&S can put us on the road to common
sense in effective, standards based ES&H
management, but we have our WORK cut
out for us

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DOE Technical Standards Program 1996 Workshop

AL Standards Activities



Karen L. Boardman, Director
Performance Assessment Division

Purpose

- Identify/Select ES&H standards
- Prevent and Mitigate Hazards
- Optimize efficiency
- Develop new standards for applications unique to AL work
- Conduct performance based assessment

Objective

- Provide a framework for the work cycle at AL sites
 - Plan
 - Do
 - Check
 - Act

AL Work Cycle

- Mutually identify a contractual set of expectations
- Implement the set
- Evaluate performance to the set
- Revise the set based on evaluation

Plan - Tailor Standards to Sites

- N&S Process
- S/RID
- Directives Process
- Review/Development of New Standards

Do - Contract the Set

- Contract Reform
- Allocate resources
- Focus based on
 - importance of work
 - significance of hazards

Karen L. Boardman

Check - Evaluate Performance



- Performance Expectations
 - Objectives
 - Criteria
 - Measures
- Plan mutually accepted
- Seamless DOE

Act - Revise Based on Evaluation



- Results are used to
 - refine contractual set
 - emphasize performance strengths
 - promote what works
 - identify performance weaknesses
 - continuous improvement

AL Site Status



- LANL - N&S
- Pantex - S/RID
- KCP - Industrial Standards
- Pinellas - Directives
- SNL - S/RID or N&S
- WIPP - S/RID
- Grand Junction - Directives

Lessons Learned



- Commitment
- Scope > ES&H
- Line Participation & Ownership
- Early Integration
- Perseverance

Thursday, April 11

PANEL PRESENTATIONS:

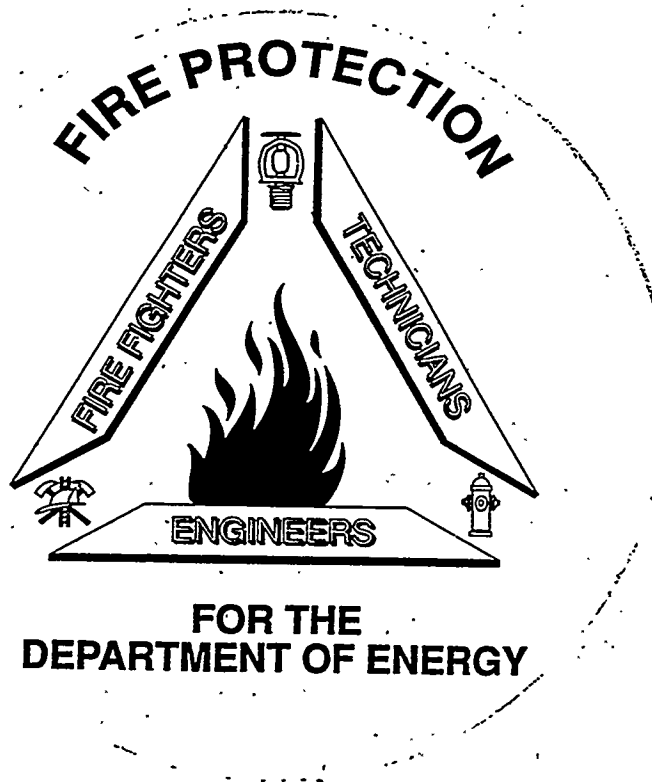
**TECHNICAL STANDARDS PROGRAM
CASE STUDIES**

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CASE STUDY

DOE-1088-95 "Fire Protection for Relocatable Structures"

**Dennis Kubicki, P.E.
Fire Protection Engr.
USDOE HQ EH-51**



"RELOCATABLE STRUCTURE"

"Manufactured structures, mobile homes, trailers, semi-trailers, modular type structures, factory assembled structures, cargo containers, hazardous materials or flammable liquid storage containers, air supported/inflated structures, tent/membrane and cloth/rib structures."

Does not apply to trailers and cargo containers in a transport mode.

THE "PROBLEM"

- o Conflicting criteria**
- o Outdated criteria**
- o Confusing criteria**
- o No criteria**

DOE O 420.1

Approved: 10-13-95
Review Date: 10-13-97

SUBJECT: FACILITY SAFETY

Chg 1: 11-16-95

1. **OBJECTIVE.** The objective of this Order is to establish facility safety requirements related to: nuclear safety design, criticality safety, fire protection and natural phenomena hazards mitigation.
2. **CANCELLATION.** The Orders listed below are canceled. Cancellation of an Order does not, by itself, modify or otherwise affect any contractual obligation to comply with such an Order. Canceled Orders which are incorporated by reference in a contract shall remain in effect until the contract is modified to delete the reference to the requirements in the canceled Orders.
 - a. DOE 5480.28, NATURAL PHENOMENA HAZARDS MITIGATION
 - b. DOE 5480.7A, FIRE PROTECTION
 - c. DOE 6430.1A, GENERAL DESIGN CRITERIA (NUCLEAR AND EXPLOSIVES SAFETY REQUIREMENTS)
 - d. DOE 5480.24, CRITICALITY SAFETY
3. **APPLICABILITY.**
 - a. **DOE Elements.** Except for the exclusions in paragraph 3c, this Order applies to DOE Elements with responsibility for DOE-owned or leased facilities as follows (see Attachment 1, Table 1, "Facility and Activity Applicability"):
 - (1) 4.2, 4.4 All DOE nuclear and non-nuclear facilities.
 - (2) 4.1, 4.3 All DOE non-reactor nuclear facilities which are classified as Hazard Categories 1, 2, or 3; and explosives facilities.
 - b. **Contractors.** Except for the exclusions in paragraph 3c, the Contractor Requirements Document (CRD), Attachment 2, sets forth requirements that are to be applied to the universe of contractors awarded contracts for management and operating contracts. Contractor compliance with the CRD will be required to the extent set forth in a contract. Contractors shall be directed to continue to comply with the requirements of Orders canceled by this Order until their contracts are modified to delete the reference to the requirements of the canceled Orders.

Vertical line denotes change.

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Office of Environment, Safety
and Health

Standard on Fire Protection for Portable Structures

August 1979

U.S. Department of Energy
Assistant Secretary for Environment
Division of Operational and Environmental Safety
Washington, D.C. 20545



WAS THERE A "NEED?"

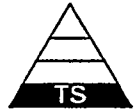
The "answer" was provided by the DOE Fire Safety Committee

A 25 member group of fire protection engineers, fire department officers, safety program managers and technicians who represent DOE Headquarters, DOE Field Elements and M&O Contractors.

A majority vote by the entire committee AND by the DOE members of the committee is required before proceeding with any initiative.

THE REVISION PROCESS

- o "Strawman" draft**
- o Comment solicitation**
- o Revised draft**
- o Committee meeting**
- o "Final" draft**
- o Formal coordination**
- o Pre-publication draft**
- o Publication/Distribution**



**NOT MEASUREMENT
SENSITIVE**

DOE-STD-1088-95

June 1995

DOE STANDARD

FIRE PROTECTION FOR RELOCATABLE STRUCTURES



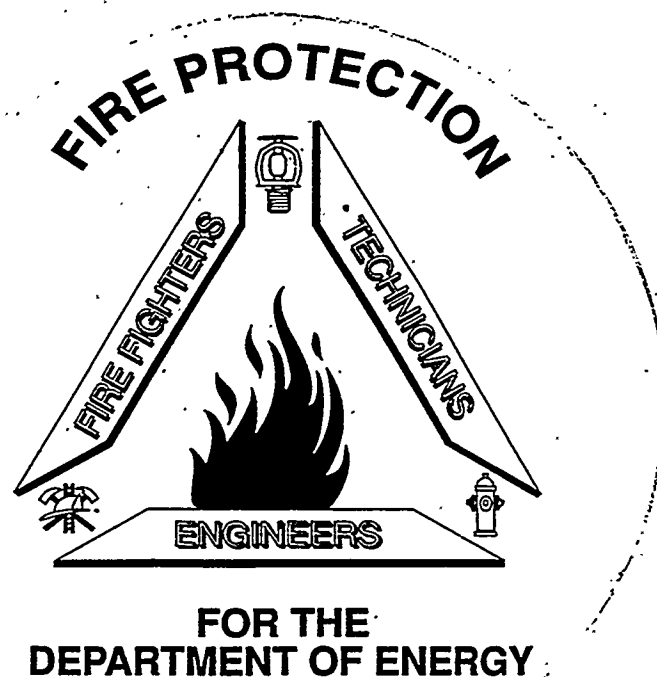
**U.S. Department of Energy
Washington, D.C. 20585**

AREA GDRQ

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

THE END PRODUCT

- o **Scope**
- o **Purpose**
- o **Applicable criteria**
- o **Definitions**
- o **Structural requirements**
- o **Placement requirements**
- o **Occupancy considerations**
- o **Fire protection requirements**



FLEXIBILITY

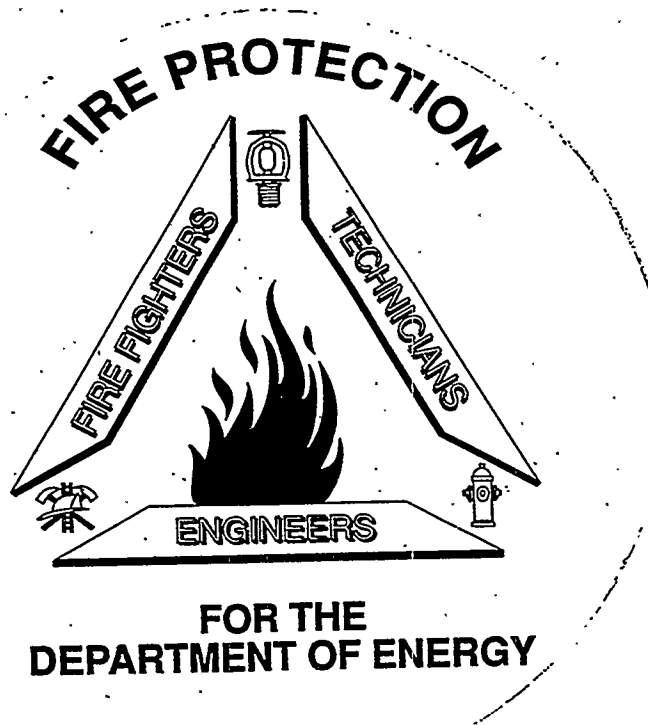
"Nothing in this standard is intended to limit the application of other fire protection methods when unique situations or hazards warrant an alternate approach. The alternate approach should provide an equivalent level of safety to that achieved by conformance with this standard."

LESSONS LEARNED

- o Time consuming**
- o Extended "deadlines"**
- o Memory failure**
- o Obstructionism**
- o Skepticism**
- o Variable interpretations**
- o Post publication issues**

COMING ATTRACTIONS

- o DOE-STD-1066-XX, "Fire Protection Design Criteria"
- o DOE-HDBK-1062-96, "DOE Fire Protection Handbook"



Development of N14.1 “Packaging and Transportation of Uranium Hexafluoride (UF₆)”

J.W. Arendt

**John W. Arendt Associates, Inc.
109 Caldwell Drive
Oak Ridge, TN 37830**

Development of N14.1

"Packaging and Transportation of Uranium Hexafluoride (UF₆)"

I. INTRODUCTION

This case study presents information on how Government (DOE, AEC, etc.) procedures and specification documents were used as the basis for a voluntary standard and in the last few years as an International Standard. This presentation discusses the development of a voluntary consensus standard utilizing ANSI procedures. The technical information used in the standard was a compilation of specifications, excerpts of operating procedures and guides that had been developed during the Manhattan Project at the Oak Ridge Gaseous Diffusion Plant (K-25)

II. THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), INC.

ANSI is the central body responsible for the identification of a single, consistent set of voluntary standards called American National Standards. ANSI does not write standards; ANSI advises and approves the work of some 250 standards-developing organizations. Two key words describe the standards process under ANSI: *voluntary* and *consensus*. Participation in the process, from the writing of the standard, through the approval process, to the implementation of the standard in the work place, is *voluntary*. American National Standards have the force of law only when and if endorsed by legal authority, for example in contracts or regulations. The approval process is based on the principle of *consensus*, which means that substantial agreement has been reached, and this determination is made by an appointed authority. ANSI approval of these standards is intended to verify that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standards has been achieved. The Procedures for the Development and Coordination of American National Standards currently in effect were approved by the ANSI Board of Directors on March 22, 1995. In order to be recognized as an American National Standard three requirements must be met: (1) the proposed standard must be submitted by an accredited method, (2) the standard must undergo public review and comment, and (3) consensus must be verified (Figure 1).

1. **Accredited Methods:**

Three processes, or methods of standards development, have been determined by ANSI as appropriate for assuring due process, they are:

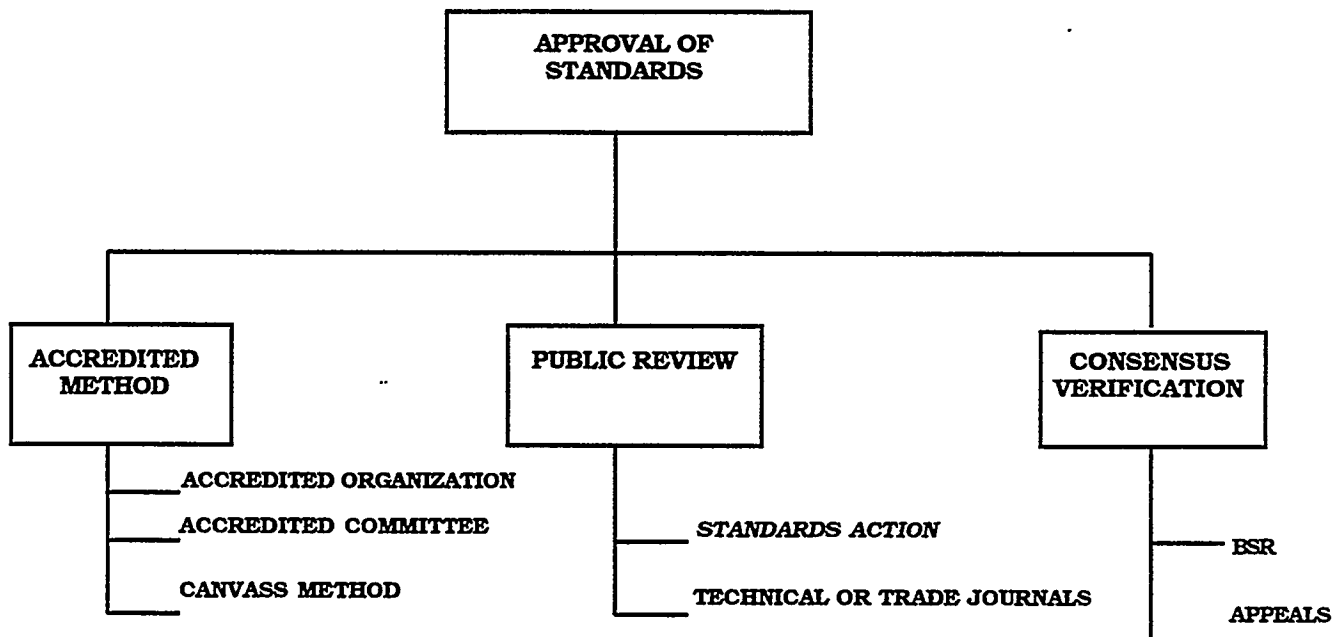


Figure 1. Development of American National Standards

- (a) accredited organizations such as American Nuclear Society or American Society of Mechanical Engineers;
- (b) accredited committees such as N13, N14, or N15 representing many organizations and interests; and
- (c) canvas method, with a sponsor and a list of those with material interests; an example of a canvass sponsor is the Underwriters Laboratories.

The Executive Standards Council of ANSI has overall accreditation responsibility. The Nuclear Standards Board, a permanent member of the Executive Standards Council, monitors the nuclear standards work of eight accredited organizations, five accredited committees, and one canvas sponsor.

2. Public Review:

ANSI provides for public review and comment through publication of a notice of the proposed standard in ANSI's biweekly newsletter, *Standards Action*. The notice allows 60 days for submission of comment. Standards developing organizations are also encouraged to publish notice in technical and trade publications.

3. Consensus Verification:

Consensus verification is the responsibility of ANSI's Board of Standards Review (BSR). Each standard developer must submit, with the proposed standard, evidence of consensus through the approved, accredited procedures. All negative responses must have been adequately addressed. Actions of the BSR may be appealed to the Board of Directors of ANSI.

III. ANSI ACCREDITED STANDARDS COMMITTEE (ASC) N14

The reaccreditation of ASC N14 under its expanded scope was effective August 6, 1992. The scope reads as follows:

"Standards for the packaging and transportation of fissile and radioactive materials, non-nuclear hazardous materials including waste and mixed materials; but not including movement or handling during processing and manufacturing operations."

Development of standards related to the packaging and transportation of radioactive materials and non-nuclear hazardous materials in the United States is accomplished by the N14 Committee. A listing of the N14 officers and management committee is included in Appendix A. The N14 Committee approved the use of model procedures for an accredited standards committee as published in Annex A of the ANSI Procedures (Ref. 1). Other ANSI procedures used are included as references 2 through 6.

N14 follows the accredited committee method for standards approval (Figure 2). A proposed standard is prepared by the writing group. (Ref. 7 and 8) A standard then goes to the Secretary of the Committee, who reviews the submission for completeness and prepares a ballot. The standard then goes to the Committee for ballot and, at the same time, is submitted for public review and comment. The N14 Committee consists of 81 voting members, representing government agencies, vendors of equipment, shippers, carriers, regulators, utilities, and other interested organizations and individuals. Negative ballots and comments are referred back to the writing group for resolution. A substantive change to a standard as a result of the resolution process requires rebalancing of the standard. Once consensus is reached, the standard and supporting documentation of consensus is forwarded to the BSR. The BSR review will confirm the due process of method and recommend for or against approval of the proposal as an American National Standard. Barring any appeals, an approved standard will be published by ANSI.

N14 has seven standards approved by ANSI and is in the process of developing five other standards applicable to transportation and packaging operations for radioactive materials. These are included in an activities report in Appendix B.

IV. N14.1-1995 PACKAGING OF URANIUM HEXAFLUORIDE FOR TRANSPORT (UF6) Ref. 9:

This standard was first produced and approved in 1971 and has been in continuous use since that date. It has been incorporated into the U.S. Department of Transportation (DOT) regulation (49 CFR 173). The standard provides the criteria for packaging of uranium hexafluoride for transport. It includes specific information on design and fabrication requirements for the procurement of new packagings. It also defines the requirements for in-service inspections, cleanliness, and maintenance for packagings in service. Also included are cylinder loadings, shipping details, and requirements for valves and valve protectors. Use of this standard provides compatibility of the packaging among different users within the industry.

V. DEVELOPMENT OF N14.1-1971

Transportation of UF6 in the United States was initiated in 1943 using Government Couriers; in 1951 by contract carrier and in 1958 by selected common carriers. After the Atoms for Peace program in Geneva, Switzerland in 1956, UF6 shipments were initiated to private industry in the United States (US) and a few years later internationally. A "Brief Guide to UF6 Handling" was prepared and issued in 1963. This became the first world wide document in packaging, handling and transportation of UF6 expanding outside U.S. Government operations, it was necessary that standards for UF6 cylinders, attachments, packaging and transportation be established to provide compatibility among different users in the industry. Engineering standards and operating procedures for packaging and transporting UF6 were developed and utilized in U.S. Government operations during the periods of Manhattan Project and later Atomic Energy Commission Control.

In 1968, as a result of a Nuclear Standards Board member inquiry about UF6 cylinder cleanliness, the project of N14.1 standard development was initiated and assigned to the N14 Committee. The scope of the project was expanded to include all packaging and transportation activities that could be standardized. The current N14 chair was selected to be the N14.1 Writing Group chair and a scope was prepared and a Writing Group was organized. Basic responsibilities of a Writing Group are outlined in a "Brief Guide for ANSI-N14 Writing Group Chairpersons", included as Appendix C. The Writing Group was selected from UF6 experts in industry and government. Most of the information used in the draft standard was available from previously developed engineering standards and operating procedures. The major effort was to organize the available information into ANSI format. It required about 3.5 years to complete the draft standard and receive ANSI approval.

VI. CONCLUSION:

The N14.1 Standard has been in use since 1971 and has been revised in 1982, 1987, 1990 and 1995. In 1989 it was used as the basis for the first international standard ISO-7195-1993 which is currently under revision.

This standard has made a significant contribution to the safety of packaging and transportation for UF6. The Department of Transportation has referenced N14.1 in the 49 CFR regulations.

REFERENCES:

- Ref. 1 - American National Standards Institute - Procedures for the Development and Coordination of American National Standards
- Ref. 2 - American National Standards Institute - Operating Procedures of the Executive Standards Council
- Ref. 3 - American National Standards Institute - Constitution and By-Laws
- Ref. 4 - American National Standards Institute - Operating Procedures of the Board of Standards Review
- Ref. 5 - American National Standards Institute - Appeals Board Operating Procedures
- Ref. 6 - American National Standards Institute - Auditing Policy and Procedures
- Ref. 7 - N14 Procedures Manual
- Ref. 8 - N14.1-1995 "Packaging of Uranium Hexafluoride for Transport"

- Appendix A - N14 Officers and Management Committee
- Appendix B - N14 Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials status report
- Appendix C - Brief Guide for ANSI-N14 Writing Group Chairpersons

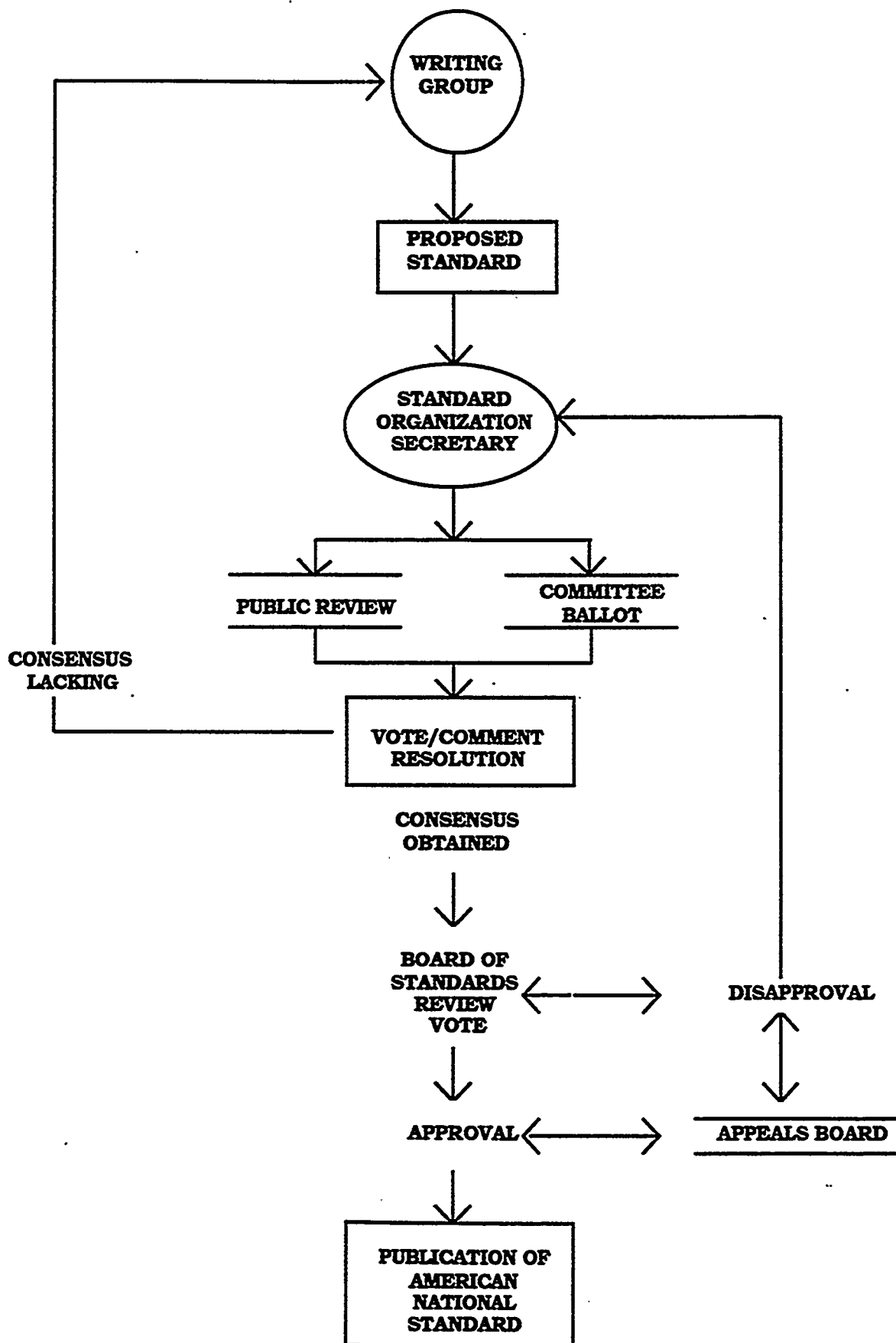


Figure 2. Accredited committee method of standards approval.

N14 OFFICERS AND MANAGEMENT COMMITTEE

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Committee: N14 - Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials

Date of Report: January 8, 1996 (Page 1)

Document Number, Title & Project Number	Brief Summary and Objective of Project	Project Status and Estimated Completion
N14.1 - 1990 - "Packaging of Uranium Hexafluoride for Transport" R.I. Reynolds, Chair	Standard provides criteria for packaging of uranium hexafluoride for transport. Update and maintain	N14 balloting completed 4/3/95. Submitted to ANSI for approval and publishing in Oct. 1995. Estimated Publishing Date: Early 1996
N14.2 "Tiedowns for Transport of Fissile and Radioactive Containers Greater than On-Ton Truck Transport: R.E. Glass, Chair	This Standard prescribes general requirements for securing packages of radioactive materials so they are not likely to come off their vehicles in the worst non-accident events of highway transportation. In accidents, packages secured as prescribed in this standard may come off their vehicle.	Balloting of draft standard was completed July 15, 1993. Negative ballots and comments are being evaluated and resolved. Memo to Writing Group in response to all comments. Writing Group meeting scheduled in November 1994 to resolve comments and finalize draft standard. Undergoing rewrite of QA section. Estimated Completion Date: 1995
N14.5 - 1987 - "Leakage Tests on Packages for Shipment" L.E. Fischer, Chair	This standard specifies methods for demonstrating that Type B packages comply with the package containment requirements of Title 10 of the Code of Regulations, Part 71, September 1983, as amended, or of the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Materials, Safety Series No. 6, 1985, or verification, and periodic verification.	Revised draft utilizing ISO format is being prepared. Final writing group meeting in May, 1996. To the N14 committee for ballot by June, 1996. Estimated Completion Date: 1996

Committee: N14 - Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials

Date of Report: January 8, 1996 (Page 2)

Document Number, Title & Project Number	Brief Summary and Objective of Project	Project Status and Estimated Completion
N14.6 - 1993 - "Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500kg) or More for Nuclear Materials" George Townes	This standard sets forth requirements for the design, fabrication, testing, maintenance, and quality assurance programs for special lifting devices for containers weighing 10,000 pounds (4500 kg) or more for radioactive materials.	Revision of N14.6 - 1986 was approved June 28, 1993. Published and for sale. Estimated Completion Date: Complete
N14.7 "Guide to the Design and Use of Shipping Packages for Type A Quantities of Radioactive Materials" R.B. Pope, Chair	This Standard provides guidance for persons responsible for activities involving the packaging of radioactive materials in Type A quantities.	N14.7 Draft sent to Writing Group for comments. Comments are being reviewed and incorporated in a revised draft. Writing Group has been expanded. PINS form has been sent to ANSI. Estimated Completion Date: 1996
N14.8 "Fabricating, Testing, and Inspection of Shielded Shipping Casks for Irradiated Reactor Fuel Elements: D. Dawson, Chair	This activity will utilize the Peer Panel Review to determine standards that should be developed.	Currently not active. Will be activated when documents are received for standards consideration. Completion dates will be set for each document received. Dave Dawson coordinating standard. Recommendation in process. Estimated Completion Date: N/A

Committee: N14 - Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials

Date of Report: January 8, 1996 (Page 3)

Document Number, Title & Project Number	Brief Summary and Objective of Project	Project Status and Estimated Completion
N14.10 "Guide for Liability and Property Insurance Aspects in Shipping Nuclear Materials"	This guide discusses conventional liability (general liability and automobile liability), insurance policies, and the attendant nuclear liability exclusion (Broad Form) as they apply to nuclear liability arising out of the transportation of nuclear material.	May be reactivated.
N14.19 - 1986 - "Ancillary Features of Irradiated Shipping Casks"	This standard sets forth requirements for the performance, design, fabrication, testing, operation, maintenance, and quality assurance of the ancillary features of irradiated fuel shipping casks.	Estimated Completion Date: N/A Standard has been withdrawn. Status of this standard is being evaluated based on ballot results. Need for standard is questionable. Possible adoption of ISO standard on trunnions.
N14.23 "Design Basis for Resistance to Shock and Vibration of Radioactive Material Packages Greater than One Ton in Truck Transport: Ken Gwinn, Chair	This standard specifies minimum design values for shock and vibration in highway transport, by truck, or tractor-trailer combination for radioactive materials when package weight exceeds one ton.	Estimated Completion Date: 1997 Writing Group meeting held at PATRAM. (ANSI Technical document still a consideration.) Final draft ready to send to N14.
		Estimated Completion Date: 1995

Committee: N14 - Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials

Date of Report: January 8, 1996 (Page 4)

Document Number, Title & Project Number	Brief Summary and Objective of Project	Project Status and Estimated Completion
N14.24 - 1985 (R1993) - "Domestic Barge Transport for Highway Route Controlled Quantities of Radioactive materials"	This standard identifies the organizations, equipment, operations, and documentation that are involved in domestic (i.e., between U.S. Ports) barge shipments of highway route controlled quantities of radioactive material (RAM) on inland waterways and in coastwise and ocean service.	Reaffirmation was approved June 28, 1993. New Writing Group chair is needed. Plans to prepare revised standard are contingent on NRC NuReg Document for LSA. LSA reactor components will be considered. Writing group chair appointed and new scope prepared by January 1, 1996 Estimated Completion Date: N/A
N14.25 "Tiedowns for Rail Transport of Fissile and Radioactive Material Containers"	This standard applies to attachment or tiedown of containers of radioactive materials to railroad cars where the gross weight of the containers exceeds one ton.	Project will start after N14.2 is completed. PINS will be submitted including a schedule for completion. Estimated Completion Date: N/A
N14.26 "Fabrication, Inspection, and Preventative Maintenance of Packaging for Radioactive Materials" Ray Hahn, Chair	This standard provides requirements for the fabrication, maintenance, and inspection to ensure the packaging is (1) properly fabricated in accordance with appropriate specifications, (2) properly maintained, (3) properly inspected, and (4) properly assembled for shipment.	Writing Group formed. First rough draft completed. Awaiting adoption of the 1985 IAEA regulation by U.S. Before distribution of draft for review. Estimated Completion Date: 1996

Committee: N14 - Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials

Date of Report: January 8, 1996 (Page 5)

Document Number, Title & Project Number	Brief Summary and Objective of Project	Project Status and Estimated Completion
N14.27 - 1986 (R1993) "Carrier and Shipper Responsibilities and Emergency Response Procedures for Highway Transportation Accidents: Brady Lester, Chair	The scope for this standard encompasses the preparation and execution by carriers and shippers of their emergency response program. It does not include the responsibilities of the "first-on-the-scene" response personnel, the actions of governmental authorities, or the specific responsibilities of the carrier or shipper during recovery operations.	Reaffirmation was approved June 28, 1993. A Writing Group chair has been appointed. Planning will now start on a new scope and an extensively revised standard in 1996. Estimated Completion Date: 1999
N14.29 - 1988 "Guide for Writing Operating Manuals for Packaging" Dennis McCall, Co-Chair Mike Burnside, Co-Chair	This guide describes the preparation and distribution of operating manuals for the use, maintenance, and inspection of packages for shipping radioactive material. It prescribes the contents of such a manual and their arrangement, and contains a sample manual that can be used as a model.	Writing Group will complete draft standard by December 28, 1995. To N14 Committee for ballot by January 15, 1996. Estimated Completion Date: 1996
N14.30 - 1992 "Design, Fabrication, and Maintenance of Semi-Trailers Employed in the Transport of Weight-Concentrated Radioactive Loads"	This standard established the design fabrication, and maintenance requirements for the "highway" transport of weight-concentrated radioactive loads. A weight-concentrated load is any payload that exceeds 1000 pounds per lineal foot over any portion on the semi-trailer. In addition, the standard provides detailed procedures for inservice inspections, testing, and quality assurance.	Standard approved by ANSI October 1, 1992. Published and available for sale from ANSI. New Chairman of Writing Group needed to start revisions. Estimated Completion Date: Complete

Committee: N14 - Packaging and Transportation of Radioactive and Non-Nuclear Hazardous Materials

Date of Report: January 8, 1996 (Page 6)

Document Number, Title & Project Number	Brief Summary and Objective of Project	Project Status and Estimated Completion
N14.31 "Standard Tiedowns on Legal Weight Transport System (80,000 lbs) for Packages Containing Hazardous Materials and Weighing Greater Than 500 Pounds" Larry Shappert, Chair	This standard provides a method for defining an appropriate tiedown system through the use of the Tiedown Stress Calculation Program. The standard describes general requirements for tiedown securing hazardous materials packages to conventional trailers. The packages have a suitable base plat (pallet or skid) or flat base, and appropriate size arrangement of tiedown assemblies for packages that are within weight and dimensional limits of the equipment.	In final format, writing group will review and validate one more time. Estimated Completion Date: 1996

BRIEF GUIDE FOR ANSI-N14 WRITING GROUP CHAIRPERSONS

I. General

1. Writing Group Chairpersons are expected to be familiar with and will be provided:
 - (a) a copy of the ANSI Procedures for the Development and Coordination of American National Standards;
 - (b) a copy of the Guide for Accelerating the Development of American National Standards;
 - (c) a copy of the ANSI Style Guide;
 - (d) a copy of Nuclear Standard/Project Initiation Notice and Data Sheet;
 - (e) a copy of N14 policy for Handling Requests for Interpretation of Standards;

II. Reporting by Writing Group Chairpersons

1. Verbal progress reports shall be made quarterly to the N14 Chair.
2. A written status report, with activities during year, status of ballot resolution, and anticipated draft Standard completion dates, is made to the N14 Chair by October 1 with a copy to the N14 Secretary.
3. For approved standards with no activity, a summary report on any questions on the standard answered during the year, any regulatory changes that potentially affect the standard, and an updated membership list will be provided as in 2 above.

III. Standards Development

The Writing Group Chairperson shall:

1. Prepare a Nuclear Standard/Project Initiation Notice and Data Sheet and send copies to the N14 Chairperson and Secretary.
2. Organize a Writing Group with a broad range of expertise and interest as is possible. The expertise shall be specialized to address the scope of the proposed standard.
3. Prepare a draft standard in accordance with ANSI Style Guide and suitable for submission to N14 for ballot and eventual ANSI approval.

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4. Obtain consensus of the Writing Group.
5. Submit draft standard to the N14 Chair for Management Committee review. Submission should include a brief summary of:
 - (a) history of standard development including reference to previous standards,
 - (b) record of resolution of issues,
 - (c) rationale for changes made.
6. Draft standards must be approved by N14 Chairperson, and Secretary before sending to N14 for balloting.
7. Reballoted standards should have cover letter with standard history and highlighted changes.

IV. Standards Maintenance

The Writing Group Chairperson shall:

1. Handle all requests for standard interpretation in accordance with ANSI and N14 Procedures as follows:
 - (a) Requests for interpretation must be in writing and are directed to the N14 Chair.
 - (b) The N14 Chair will send the request to the Writing Group Chair.
 - (c) The Writing Group chair will consider the request and prepare a response which must be reviewed by all Writing Group members.
 - (d) The Writing Group chair will send the approved response to the N14 Chair with a copy to the N14 Secretary.
 - (e) The N14 Chair may have, depending on the complexity of the issue, the response reviewed by experts from the N14 Management Committee or the N14 Membership.
 - (f) The N14 Chair will send to the N14 Management Committee for their review and approval.

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- (g) The N14 Chair will send the response to ANSI for their information and file.
 - (h) The Writing Group chair will maintain a file of all requests for interpretation and consider all responses at the time of the next standard revision.
2. Keep the Writing Group intact but on an inactive basis after a standard is approved and published.
 3. Update Writing Group membership annually; members should be replaced or added as needed.
 4. Update the standard at least every 5 years. Standards should also be revised whenever the need arises, e.g., errors, new information, etc. Standards can be revised by (1) a complete or partial rework of the document, or (2) an addendum.
 5. Request the Secretary of N14 to ballot N14 members in the 4th year with one of the following choices to be used on the ballot:
 - (a) Standard should be reaffirmed;
 - (b) Standard should be revised;
 - (c) Standard should be withdrawn.
 6. Writing Group Chairperson will provide the N14 Chairperson and Secretary, with anticipated draft standard completion dates. Secretary will advise ANSI that the standard is being revised and furnish the approximate date that it will be available for ANSI approval.

V. Ballot Results

Consideration shall be given to the written comments and negative ballots must be formally resolved (including those commenting on the listing in Standards Action). All negative ballots must be referred to the Writing Group for consideration and disposition. These actions must be documented for ANSI submittal. The negative balloters shall be advised in writing of the disposition of their objection and given the opportunity to amend their ballot. Reasons for voting negatively must be supported with detailed supporting information, and they must be substantive. An Alternative should be provided. The ballot may be considered invalid if substantive issues are not identified. Examples of invalid reasons which will not be considered are:

1. The standard is technically not adequate.

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2. The standard does not reflect good judgment with respect to economic vs. safety tradeoff.
3. The standard is inconsistent with every day experience in the trucking industry.

Caution: The improper handling of a negative ballot is one of the major reasons it takes so long to get a standard approved.

The N14 Chairperson will work with the Writing Group Chairperson to speed up this process.

VI. Reballoting

Any change resulting from the Writing Group consideration of comments and/or negative ballots that is substantive will cause the standard to be reballoted by the N14 Committee. A substantive change in a proposed American National Standard is one which directly and materially affects the use of the standard.

Examples of Substantive Changes:

1. "shall" to "should"; "should" to "shall"
2. addition or deletion of requirements, regardless of the number of changes
3. addition of mandatory compliance with referenced standards.

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NATIONAL CALIBRATION STANDARD: DOE AND THE NATION

Technical Standards Case Study

DOE Technical Standards Program
1996 Workshop
St. Louis, Missouri
April 11, 1996

Ralph T. Johnson
Sandia National Laboratories

This work was supported by the United States Department of Energy
under Contract DE-ACO4-94AL85000.
RTJ:964_11.vug



Sandia National Laboratories

CASE STUDY OUTLINE

- Purpose and Problem
- Background and Justification
- Risks and Outcome
- Benefits and Lesson Learned

PURPOSE: STANDARDIZATION OF METROLOGY ACTIVITIES

- **Metrology - The Science of Measurements**
 - **Cornerstone of Quality for DOE Programs**
 - **Pillar of National Measurement Infrastructure**
- **Measurement Precision, Analysis and Standards**
- **Calibration of Measurement and Test Equipment**
- **Data Accuracy, Reliability and Quality**
- **Use Non-Government Standard For Uniformity**

PROBLEM: DUPLICATION, FRAGMENTATION, AND COST

- Multitude of Standards → *Lack of Uniformity in Requirements*
 - DOE Programs
 - » DOE Standards Used (6 or more)
 - » Non-Government Standards Used (23 or More)
 - National
 - » Government Agencies Have Different Standards
- Multiple Audits → *High Costs*
- U.S. Program Lacks Coordination and Is Not Internationally Accepted → *U.S. Products and Services Not Competitive*

BACKGROUND: CORRECTIVE ACTION IS AT THE NATIONAL LEVEL

- **Government and Industry Joint Activity**
- **Coordinated By: National Conference of Standards Laboratories**
 - **Sponsored Forum For Identifying National Needs (1990)**
 - **Formed Standards Committee**
- **DOE Representation**
 - **Albuquerque Field Office**
 - **Sandia National Laboratories**
 - **Oak Ridge National Laboratory**
 - **Allied Signal Aerospace, Kansas City Division**

BACKGROUND: NATIONAL GOAL IS ONE STANDARD

- **Acceptance To All Agencies and Compatible with International Standards**
- **Serve As Basis For Laboratory Accreditation Program**
- **Internationally Acceptable**

JUSTIFICATIONS: ALL REDUCE COST

- **Creates Uniformity in Requirements**
- **Eliminates or Minimizes Redundant Audits**
- **Improves Data Integrity**
- **Lowers Trade Barriers**

WHAT IS AT RISK?

- DOE
 - Data Integrity
 - Operational Efficiency
- NATION
 - U.S. Balanced Budget
 - “Doing More With Less”
 - International Trade
 - U.S. Industry Exports: \$660 Billion in 1993
 - Removing Technical Barriers Could Produce Additional \$20 to \$40 Billion Annually

OUTCOME: NATIONAL STANDARD AND ACCREDITATION

- **ANSI/NCSL Z540-1-1994: “General Requirements for Calibration Laboratories and Measuring and Test Equipment”**
 - **Accompanying Handbook**
- **Withdrawal of Other Related Standards**
 - **MIL STD 45662A “Calibration System Requirements”**
 - **IEEE STD 498-1990: “Calibration and Control of Measurement and Test Equipment Used in Nuclear Facilities**
- **Accreditation Programs**
 - **National Institute of Standards and Technology/National Voluntary Laboratory Accreditation Program (NIST/NVLAP)**
 - **American Association for Laboratory Accreditation (A2LA)**



OUTCOME: DOE MOVES TOWARD USING ANSI/NCSL Z540-1-1994

- DOE Nuclear Weapons Complex Is Adopting
 - DOE Supplemental Directive AL57XA Being Withdrawn
- Other DOE Programs/Projects Moving Toward Use
 - Waste Isolation Pilot Project
- DOE Implementation Guide for Use With 10 CFR Part 830.120, Quality Assurance
 - To Be Incorporated
- Can Be Extended To Testing Laboratories

BENEFITS TO DOE

- **Standards are Compatible and Fully Integrated into National and International Standards Activities**
- **Reduced DOE Directives**
- **Improved Audits and Appraisals**
- **Certification of Competence**
- **Cost Savings**

BENEFITS TO THE NATION

- **National Uniformity and International Compatibility**
- **Quality High-Technology Products and Services**
- **U.S. Lead In International Standards Development**
- **International Competitiveness**

LESSONS LEARNED

- **Standards Development Is Essential In Technology Advances**
- **Broaden Representation on Standards Committees**
- **Commitment Required for Standards Uniformity, Integration and Coordination**
- **Incentives Needed to Promote Cooperation**
- **Champions Help Make It Happen**
- **Persistence Is Required**

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CASE STUDY: CONTROL OF RADIATION PROTECTION INSTRUMENT PERFORMANCE

K.L. SWINTH

Swinth Associates
Richland, Washington

1

PURPOSE OF PRESENTATION

- Trace Development & Application of Standard for Instrument Performance
 - Standard Development
 - Value-Impact Analysis
 - Incorporation into Guidance
 - Current Activities
- Illustrate Value of :
 - Dialog With Stakeholders
 - Evaluation of Standard Requirements

2

NEED FOR STANDARD

- Acceptance Testing
- TMI Unit 2 Experience
- "Fall-back" of Instruments
- General Deficiencies
 - Environmental Effects
 - Magnetic Fields
 - Energy Response
 - Accuracy Limitations
 - Radio-Frequency Susceptibility

3

DEVELOPMENT OF PERFORMANCE STANDARD

- Started in 1981 (J.M. Selby)
- Broad Representation on Committee (Consensus Development)
- DOE/NRC Evaluation Project
 - Applicability/Practicality of Standard
 - Evaluate Cross Section of Instruments
 - Establish Test Capability
- Published in 1989

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ANSI N42.17 STANDARD

- General Characteristics
- Electronic/Mechanical Requirements
- Radiation Response
- Interfering Response
- Environmental Conditions
- Format of Tests
 - Performance Requirement
 - Test Method
- Standard Test Conditions

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EVALUATION OF STANDARD

- Test of Over 100 Instruments
 - 46 Models
 - 479 Tests
 - Overall Failure Rate 25%
- Changes in Standard
 - Coefficient of Variation
 - Mechanical Shock
 - Vibration

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EVALUATION OF STANDARD (cont.)

- Generic Instrument Deficiencies
 - G.M. Energy Response
 - Air proportional/ Gas Flow Proportional Environmental Interferences
- General Problem Areas
 - Angular Response
 - Temperature Sensitivity
 - R.F. Susceptibility

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Table 1. Predicted performance for selected tests on lead's primary instruments compared against ANSI N423.2-A requirements.

Test	Acceptable Variance, %	Number of 17 Laboratory of Studies Tests, by Instrument Category		
		See Chapter 4	Chapter 5/6/7	All 17
Stability	±1	84	178	87
Accuracy	±1	14 ^a	312 ^a	14 ^a
Energy Response	±25	17 ^a	854 ^a	14
Angular Response	±25	17 ^a	811 ^a	14
Temperature	±15	37	513	48
Pressure	±12	15	354	34
Mechanical Shock	±15	63	88	88
Vibration	±12	14	87	38
Ambient Pressure	±12	84	84	87
Radio Frequency Susceptibility	±12	27	25	85
Microphone Susceptibility	±15	43	37	23

^a For phase selection.

^b NA = not applicable.

^c Variance in testing for 17 categories is not performed pursuant to ANSI N423.2-A test requirements.

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VALUE-IMPACT STUDY

- NRC Study
- Costs
 - Overexposures
 - Regulatory Non-Compliance
- Benefits
 - Reduction of Liability
 - Reduction of Investigation Costs

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VALUE-IMPACT STUDY CONC.

- Voluntary Program Without Publication Not Effective
- Amending 10CFR20 Favored Over Regulatory Guide
- Limited Testing Not Recommended
- Acceptance Testing Recommended
- Three-Year Grace Period
- Amend Requirement for Adequate Surveys
- Alternative Publication of Test Results

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IMPLEMENTATION COMMITTEE

- Subcommittee of "Joint Planning Committee for Radiation Survey Instruments and Calibrations"
- Broad Representation
 - Three Vendors
 - Federal Government (DOD, NRC, DOE, and NIST)
 - States (CRCPD)
 - Users

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IMPLEMENTATION COMMITTEE (cont.)

- Considered Voluntary Program
 - Projected Net Benefit
 - Faster Than Regulation
 - Flexible
 - Implementation Methodology Needed

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INTEGRATION INTO DOE

- DOE Orders (5480.11, 5480.4)
- 10CFR835
 - 401(c)(1),(4) [323]
 - 401(c)(2),(3) [42.17]
- Implementation Guide
 - ANSI N323
 - ANSI N42.17

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INTEGRATION INTO DOE

(cont.)

- Radiological Control Manual
 - ANSI N323
 - ANSI N42.17
 - Encourage Standardization (Article 561)
 - Suitable for the Environment (562(4), 551(4), 513(5))
- DOE N441.1

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INSTRUMENT STANDARDIZATION

- DOE Contractor Effort
- Incorporate ANSI N42.17 Testing
- Data Base of Test Results
- Instrument Selection Effort
 - Reduced Support Functions
 - Simplify Follow-On Purchasing

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OBSERVATIONS/CONCLUSIONS

- Benefits to Type Testing
 - Improved Measurement Accuracy
 - Transfer of Knowledge
 - Selection of Instrument
 - Ensure Availability of Correct Instrument
- DOE Implementation
 - Incorporate Into Guidance
 - Contractor Standardization

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OBSERVATIONS/CONCLUSIONS (cont.)

- Goal Was National Program
 - DOE Prime Beneficiary
 - Testing Cost Limits Application
- Instruments Have Improved
 - Faster Identification of Deficiencies
 - Manufacturer Awareness
- Must Be Complemented By Acceptance Testing

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OBSERVATIONS/CONCLUSIONS (cont.)

- Evaluation of Standard
 - Realistic Tests
 - Highlighted Problem Areas
- Dialog With Stakeholders
 - Improved Industry Awareness
 - User/Vendor Acceptance
 - Resulted in Faster Development/Approval

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Pass/fail performance for selected tests on health physics instruments evaluated against ANSI N42.17A requirements.

Test	Allowable ^c Variation, %	Number of Failures/Number of Models Tested, by Instrument Category		
		Ion Chamber	Geiger- Mueller	Alpha
Stability	±6	0/6	1/20	0/7
Accuracy	±15	1/6 ^a	3/11 ^a	NA ^b
Energy Response	±20	1/7 ^a	9/14 ^a	NA
Angular Variation	±20	1/3 ^a	9/11 ^a	NA
Temperature	±15	3/7	0/12	4/6
Humidity	±15	1/5	2/14	2/4
Mechanical Shock	±15	0/3	0/8	0/6
Vibration	±15	1/4	0/7	2/6
Ambient Pressure	±15	0/6	0/4	6/7
Radiofrequency Susceptibility	±15	2/7	2/5	0/5
Microwave Susceptibility	±15	4/5	3/7	2/3

^a For photon radiation.

^b NA = not applicable.

^c Variation in reading due to changes in test parameter permitted by ANSI N42.17A test requirements.

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Friday, April 12

PANEL PRESENTATIONS:

**TECHNOLOGY EXCHANGE
PROGRAMS AND PRACTICES**

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DOE Technical Standards Program 1996 Workshop

ABSTRACT

Industries of the Future: A Strategy to Focus DOE's Industrial R&D James E. Quinn

DOE's Energy Efficiency and Renewable Energy, Office of Industrial Technologies (OIT) supports technology R&D programs directed toward increasing energy efficiency and promoting clean manufacturing technology in U.S. industries. Through these programs, OIT hopes to accelerate the development and adoption of new technologies that will reduce energy and raw material inputs, improve labor and capital productivity, and reduce the generation of wastes and pollutants. OIT's strategy for accomplishing these goals is to focus technology development efforts on seven energy- and waste-intensive industries: steel, aluminum, metalcasting, chemicals, petroleum refining, forest products, and glass. These industries account for about 80 percent of all manufacturing energy use as well as over 80 percent of industrial waste generation. They are also vital to the strength and health of the U.S. economy.

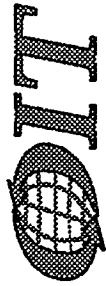
OIT has developed the *Industries of the Future* initiative to align its research and development programs with the needs of the seven "vision" industries. The overall goal is to establish partnerships with these seven industries to improve resource efficiency and competitiveness through targeted R&D investments. This approach encompasses the development of an industry *vision*, *technology roadmap*, and *implementation plan* to create a blueprint for the industry to pursue its long-term business and strategic goals. OIT facilitates the development of these documents through the application of total quality management techniques, engineering analysis facilitated workshops, coordination of technical conferences, and analysis of key issues.

Each of the OIT vision industries faces unique market, business, and regulatory challenges that determine the success of advanced technologies in their sectors. Understanding these challenges is critical in designing long-term sector-wide strategies that address future business and technology needs.

OIT has established a *Vision Team* for each of the industries it supports. These teams consist of OIT staff that are drawn from technology and deployment programs. Each Team is responsible for assisting their vision industry to articulate long-term needs, set research priorities, implement cooperative R&D activities, and effectively communicate results to industry customers. Team members are charged with integrating team activities with technology development and deployment programs which they also manage.

James E. Quinn

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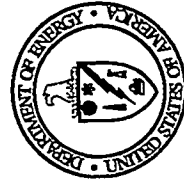


Industries of the Future

Presentation to the
DOE Technical Standards 1996 Workshop
April 12, 1996

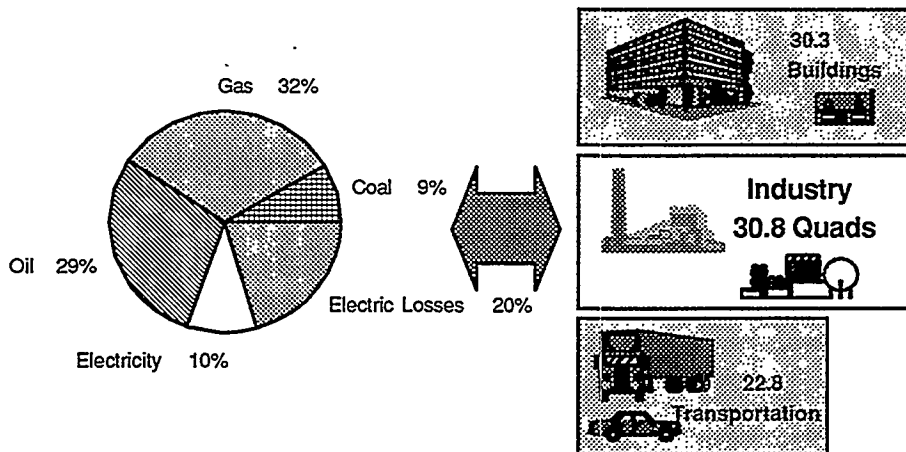
James E. Quinn
Team Leader: Planning, Analysis & Evaluation

Office of Industrial Technologies
Energy Efficiency and Renewable Energy
U.S. Department of Energy



U.S. Energy Consumption

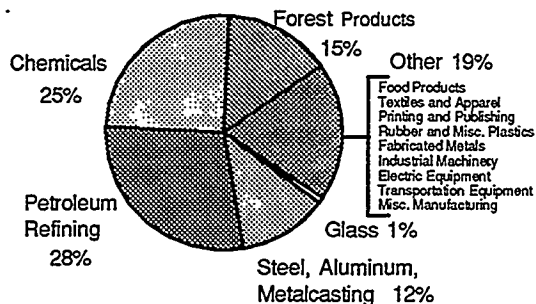
83.9 Quads (Quadrillion Btu)



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OIT Targets: Energy- and Material-Intensive Industries

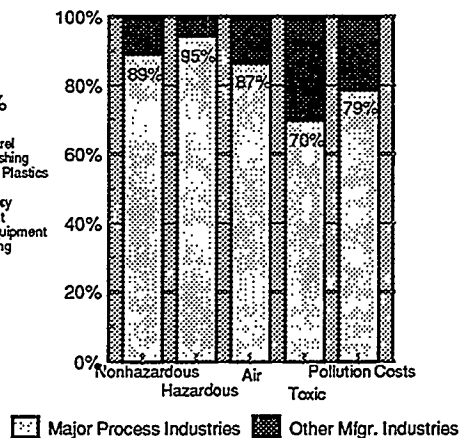
Manufacturing Energy Use 1991



Total: 20.3 Quads

Office of Industrial Technologies

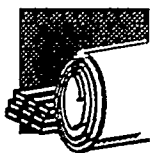
Manufacturing Wastes



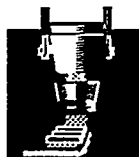


- ❖ Improve resource efficiency of energy- and waste-intensive U.S. industry to:
 - reduce raw material and depletable energy use per unit output
 - reduce generation of wastes and pollutants
 - provide advanced science and technology options that dramatically increase the productivity of U.S. industry

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Forest Products



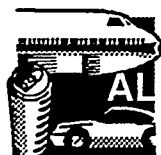
Steel



Metalcasting



Glass



Aluminum



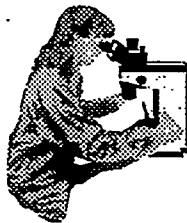
Chemicals



Petroleum
Refining

Office of Industrial Technologies

OIT's Customer: Industry



❖ Research Partners

❖ Technology Developers

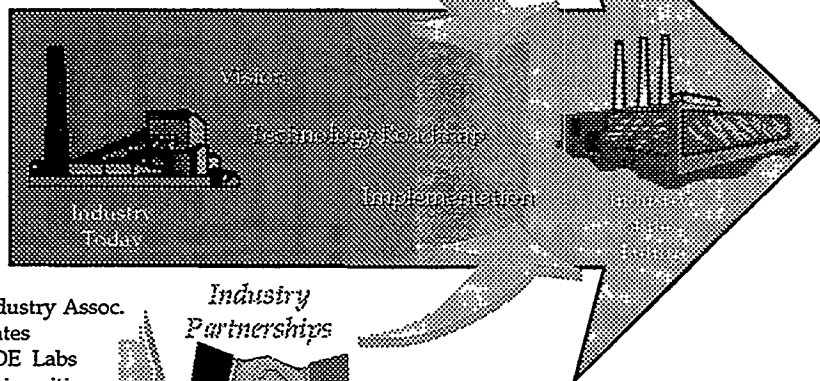


❖ Technology Users

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Industries of the Future Strategy

*Advanced
Technology*



Industry Assoc.
States
DOE Labs
Universities
Fed. Gov't

*Industry
Partnerships*



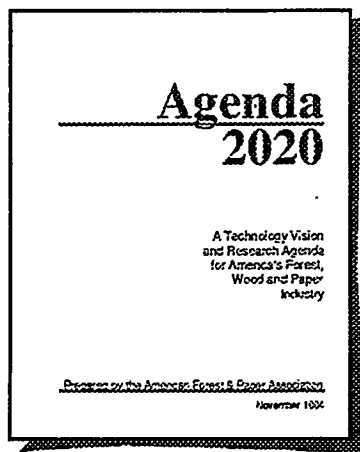
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*An industry-defined view of its desired future
and the long-term strategy to attain it.*

- Desired future state of the industry
- Strategic objectives and performance targets
- Market, business, and societal drivers
- Situation analysis of the industry
- Major challenges and barriers

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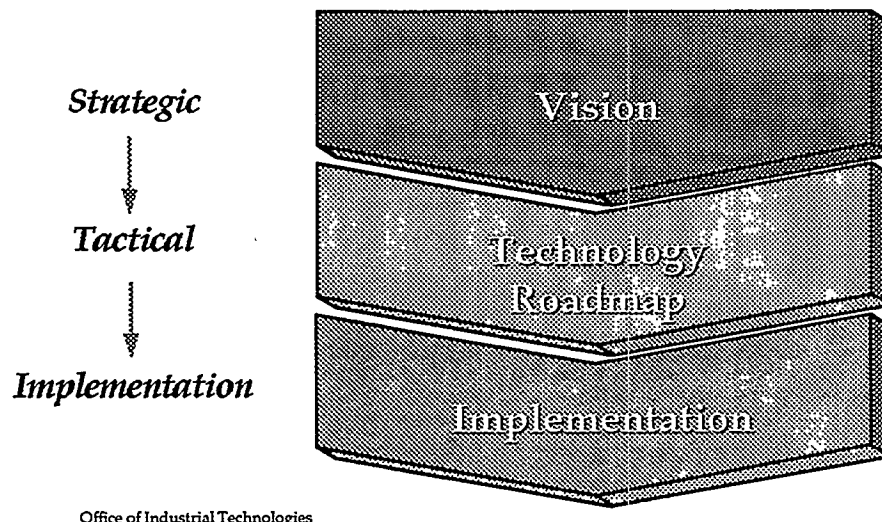


Six Strategic Targets

- ❖ Sustainable Forest Management
- ❖ Environmental Performance
- ❖ Energy Performance
- ❖ Improved Capital Effectiveness
- ❖ Recycling
- ❖ Sensors and Controls

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The Industries of the Future Steps

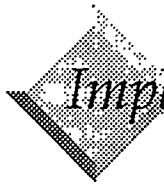


Technology Roadmap

A comprehensive technology strategy that outlines clear technical milestones for achieving the goals of the Industry Vision.

- Technical requirements and targets
- Identification of current technologies
- Technology barriers, options, and pathways
- Priorities of technology options and research agenda
- Major milestones

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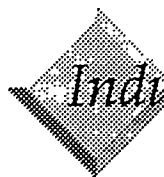


Implementation

A multi-year action plan to implement a prioritized research agenda that accomplishes the Technology Roadmap.

- Research needs and targets
- Survey of existing research efforts
- Industry priorities of proposed R&D projects
- Project milestones and success indicators
- Resource requirements and commitments
- Capabilities of R&D providers

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Industry's Role

- ❖ Leads and owns the process
- ❖ Identifies & prioritizes technology needs
- ❖ Develops implementation strategy
- ❖ Commits resources
- ❖ Conducts R&D
- ❖ Assesses progress against goals
- ❖ Uses results

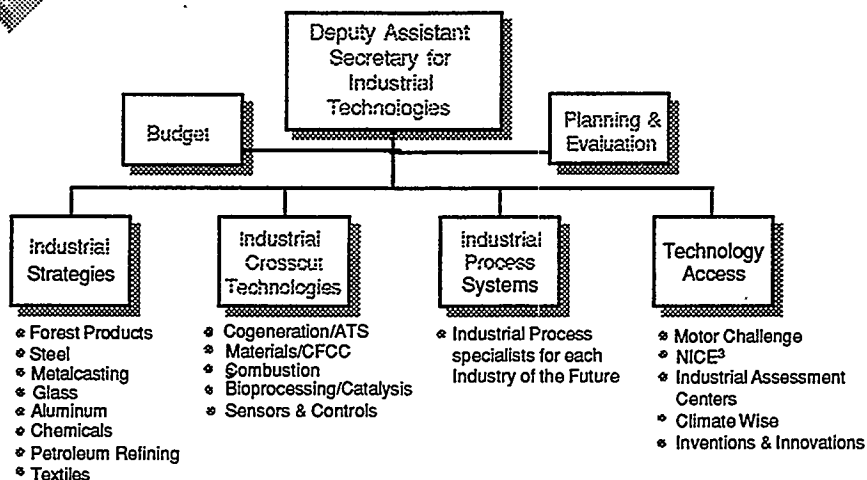
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OIT's Role

- ❖ Facilitate the process
- ❖ Catalyze industry interactions
- ❖ Assist with planning
- ❖ Coordinate stakeholders
- ❖ Provide access to the scientific and technical capabilities of the national laboratories
- ❖ Coordinate government resources
- ❖ Broker agreements
- ❖ Share cost of selected projects

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Office of Industrial Technologies

Nickel Aluminides



- Long term DOE investment reaps important benefits
- Exo-Melt process wins R&D 100 award

SELECTED APPLICATIONS

- ❖ Transfer rolls in steel reheat furnaces (photo)
- ❖ Paper drying rolls
- ❖ Trays for carburizing steel automotive parts
- ❖ Forging dies for near net shape casting
- ❖ Hundreds of potential applications

BENEFITS

- ❖ Productivity ↑
- ❖ Energy Efficiency ↑
- ❖ Environmental emissions ↓

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Deployment of Industrial Technologies



National Industrial Competitiveness Through Energy, Environment, and Economics

Joint DOE/EPA program to cost share with industry and states demonstrations of innovative energy efficiency and clean production technologies



Industrial Assessment Centers

30 university-based centers to conduct energy and waste audits at small- and medium-sized companies



Motor Challenge Program

Joint DOE/industry program that gives national recognition to firms which participate in a showcase demonstration

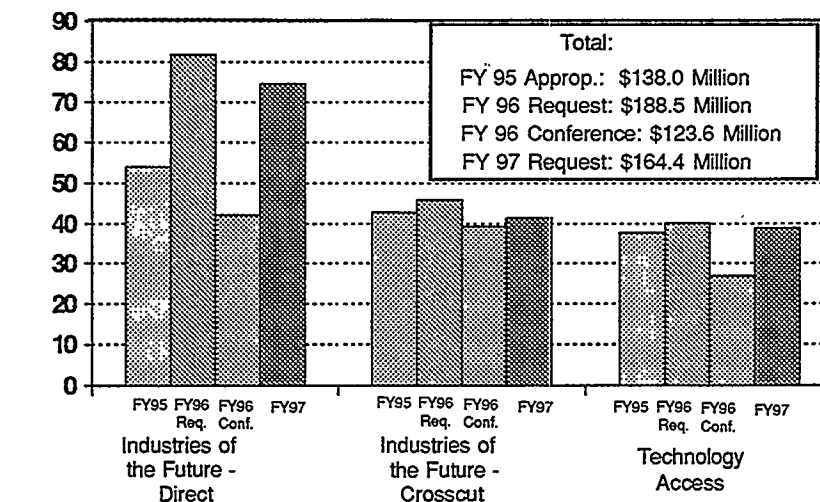


Climate Wise

Voluntary greenhouse gas emission reduction recognition program

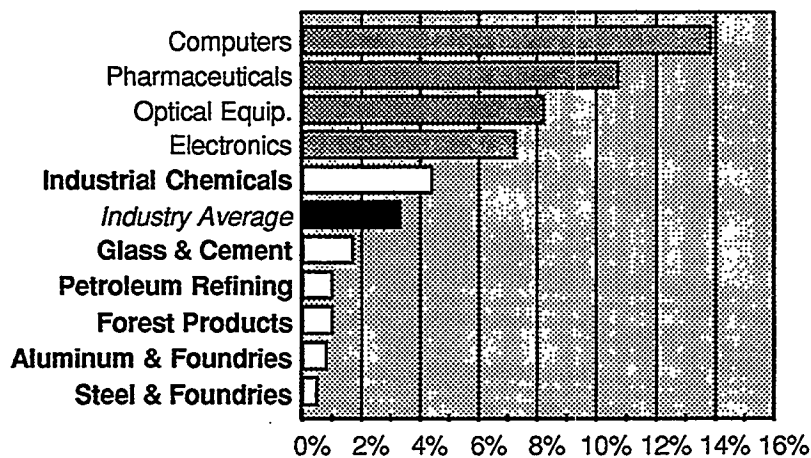
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Industrial Technologies Budget



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R&D Expenditures in Industry



Source: National Science Foundation, 1995.

R&D as a Percent of Sales

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Technology Transfer at DOE National Laboratories

Office of Science and
Technology Partnerships
Oak Ridge National Laboratory

L. B. Dunlap

April 12, 1996

Dynamic Process

Technology transfer is a dynamic process that continues to evolve.

This presentation will cover:

- Mechanisms
- Winners
- Success Stories
- Standards
- Challenges

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Office of Science and Technology Partnerships

April 12, 1996

Technology Transfer Mechanisms

Sharing technology for mission needs

- Publications
- Presentations
- Networking

Making Laboratory facilities and experts accessible

- User program
- Personnel exchanges
- Visiting research appointments
- Technical assistance
- Consulting

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April 12, 1996

Technology Transfer Mechanisms

Transferring rights to laboratory-developed technology

- Licensing agreements

Jointly developing technology that benefits DOE and meets industry needs

- Cooperative Research and Development Agreements

Assisting new business start-ups

- Entrepreneurial support

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April 12, 1996

Licenses

Licenses are used to transfer more fully-developed technology into the private sector.

- Patents and copyrights
- Terms can range from nonexclusive - field of use - exclusive
- Improvements, modifications, and technical assistance are normally included
- More than 1,000 licenses to DOE technology executed through FY 1995

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Authority for CRADAs

Two legislative acts granted authority to federal laboratories to enter into Cooperative Research and Development Agreements (CRADAs) with industry

- Federal Technology Transfer Act of 1986
- National Competitiveness Technology Transfer Act of 1989

CRADAs moved the technology transfer program into a technology partnership/teamwork mode — a move that has caused a paradigm shift in both laboratories and industries.

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April 12, 1996

User Program

The User Program enables laboratories to open their doors to large, complex, and unique facilities — one-of-a-kind experimental and analytical facilities.

- Particle Accelerators
- Reactors
- Materials Development Labs
- Materials Characterization Labs
- Electron Microscopes

ornl

Office of Science and Technology Relations

April 12, 1996

Technology Transfer Works Everybody Wins

Partners/Participants gain

- title to their own inventions
- protection of sensitive data
- leveraging of resources
- access to world-class facilities
- opportunity to collaborate with renowned scientists

ornl scientists gain

- opportunities to share ideas and work with industrial and academic peers
- share of royalty income from their licensed inventions
- satisfaction of seeing results of their work utilized

DOE and orn1 gain

- enhancement of DOE program missions
- right-to-use, royalty free licenses to partners' subject inventions
- use of government-developed technology to benefit U.S. economy
- income from licenses

orn1

Office of Science and Technology Partnerships

April 12, 1996

Standards

Basis of Comparison in Technology Transfer

Traditional Standards

- No absolutes
- Agreement - Model
- Benchmarking for best practices

Pseudo standards - Output measures

- No. patents/R&D dollars
- No. licenses issued
- Commercial sales
- No. CRADAs
- CRADA cycle time
- No. Small Business participants

oml

Challenges

- Awareness
- Fairness of Opportunity
- Benefits Justification
- Financial Support

Friday, April 12

PANEL PRESENTATIONS:

**INFORMATION SUPERHIGHWAY
STANDARDS**

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Information Superhighway Standards



Presentation for the DOE Technical Standards Program 1996 Workshop

David K. Berkau, Sr.
U.S. Department of Energy
19901 Germantown Rd.
Germantown, MD 20874
Phone: (301) 903-3193
dave.berkau@hq.doe.gov

Page 1

Information Superhighway Standards



The DOE Information Architecture Team

 Corporate Information Architecture Approach
Information Management Standards Program
Strategic Information Management Processes
DOE Strategic Alignment Initiatives
Information Management Planning and Architecture
Coordination Team (IMPACT)

Page 2

B.2 Develop A Comprehensive Corporate Information Management Program



Goal:

Institutionalize a corporate information management program on a comprehensive and methodical approach to systems integration, well-defined corporate information architecture, and a right-sized corporate information infrastructure.

Page 3

High-Level Information Architecture Actions Identified



- Review Departmental corporate IM program and infrastructure for potential improvements
- Baseline existing IM architectures, infrastructures, standards, systems, and resources Departmentwide
- Define DOE corporate IM future baseline architecture infrastructure and information structures

Page 4

High-Level Actions Identified (Continued)



Participate in BPR initiatives to assist customers with enhancing business processes by applying information technology where appropriate

Define projects to meet corporate BPR requirements

Obtain concurrence, commitment, priorities from, and report progress to Executive Committee for Information Management

Develop and implement comprehensive corporate information management projects

Page 5

B.2 Action Plan Architecture Steps (Current Status)



Baseline information architecture - Final draft sent out for comments

Define future IM architectures - Just being initiated

Participate in BPR initiatives -Ongoing

Define corporate project requirements -Ongoing

Executive Committee for IM interaction -Status unknown

Develop/implement corporate IM projects -Just starting

Page 6

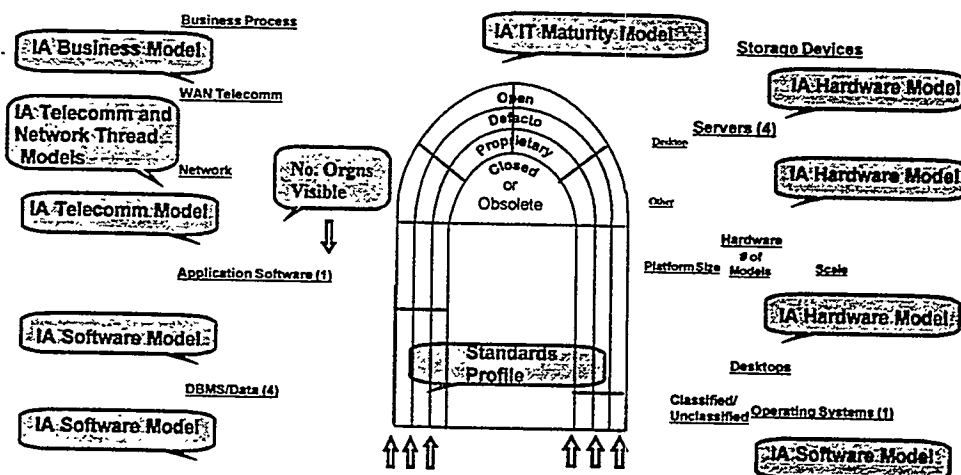
Planned Baseline Analysis Goals



- Depict the current technology base
- Identify the software systems and data in place
- Map the various networks and protocols
- Identify the standards already in place
- Identify benchmarks
- Present findings and opportunities
- Validate and support current initiatives

Page 7

Palladian Window Data Sources (Organization Type (Number))



Color Coded For Problem Classification or Visibility Confidence Level

Page 8

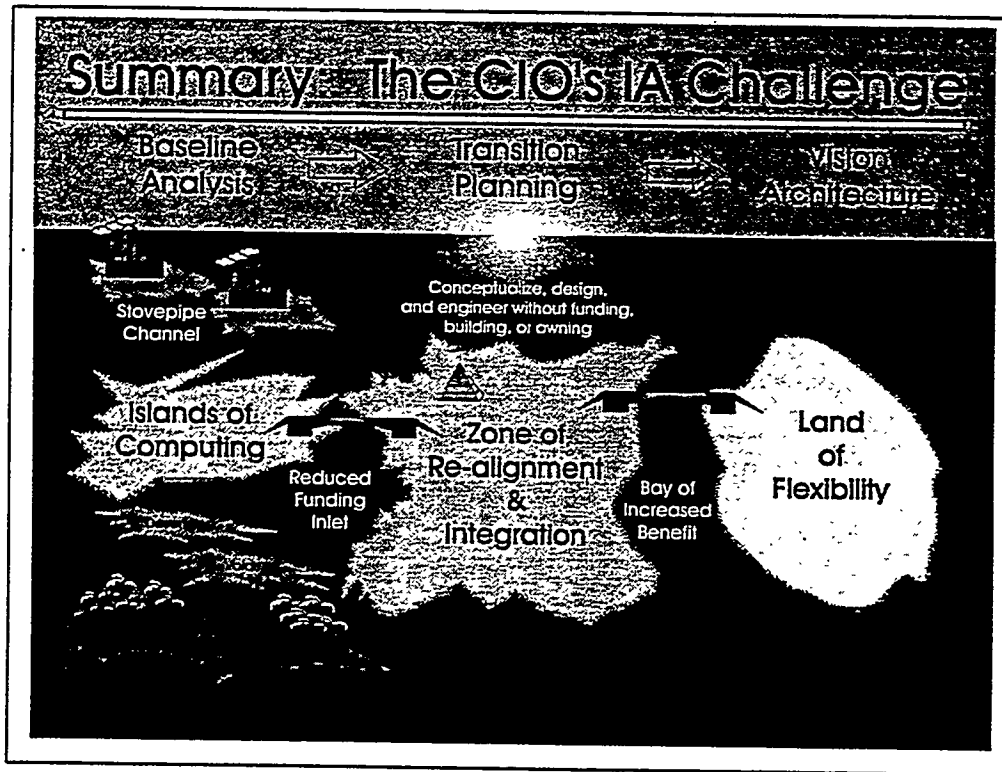
Note: Product names are representative, only

Analysis and Findings Focal Areas



1. Duplication and redundancy
2. E-Mail impact
3. Internet connectivity
4. Security
5. Standardization strategies
6. Procurement
7. Business relationships and technical approaches
8. Benchmarks in technology
9. Migrations to advances in technology
10. Technology ages at sites
11. Throughput, speed, and capabilities
12. Minimum desktop platform requirements
13. Data center replacement
14. Data warehousing

Page 9



Policy Statement



"The Department of Energy will implement a Departmentwide information architecture to support its programmatic and business goals and missions."

"Guiding principles will be used to define an architecture that will be *standards-based* and will assure *integrity*, will *reduce duplication*, and promote *interoperability*, *efficiency*, *openness*, *integration*, and *accessibility* of the Department's *information* resources."

Page 11

Information Superhighway Standards



The Need for Standards on the Information Superhighway

- Seamless, interactive, user-driven networks/services
- NPR and the Federal Government's role
- Promote interoperability between Government and private sector
- Ensure information security where required

Page 12

Information Superhighway Standards

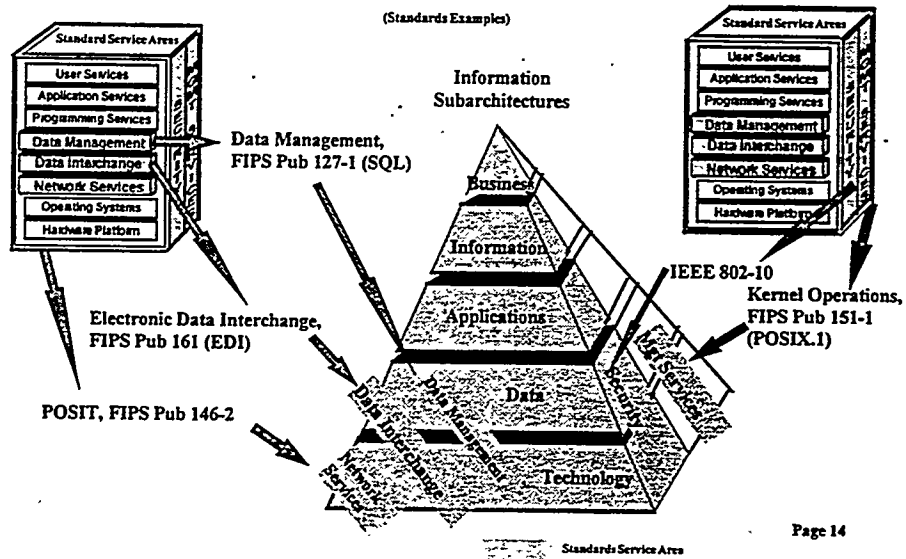


IMPACT Candidate Standards

- Network services
- Data interchange
- Data management
- Security
- Information management services

Page 13

Relationship of Standards Services Areas to the Information Architecture Model



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U.S. DEPARTMENT OF ENERGY



INFORMATION ARCHITECTURE STANDARDS ADOPTION PROCESS DRAFT CUSTOMER SERVICE ACTION PLAN

Assistant Secretary for Human Resources and Administration
Deputy Assistant Secretary for Information Management
Systems Engineering Group
Information Architecture Team

Foreword

The Department of Energy (DOE), through the Strategic Alignment Implementation Plan for Information Management, is committed to the development of an enterprise wide information architecture. Achieving the vision of the information architecture will require adopting, employing, and tracking information technology standards where appropriate to assist its customers and business partners in fulfilling the Department's mission and enhancing the DOE information infrastructure. Moreover, the adoption and implementation of standards throughout the DOE complex must be strongly consensus based with active participation of enterprise-wide stakeholders.

In support of these commitments, the DOE Chief Information Officer proposes to implement a Departmental Information Architecture Standards Adoption Process to meet the needs of the DOE community. Information Technology Standards Points of Contact and Information Management Planning and Architecture Coordinating Team members are encouraged to continue their participation in information technology standards activities and also expand their participation through assisting in the new standards adoption process described in this Service Action Plan.

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Benefits	6
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Appendix B - Information Technology Standards Points of Contact	B-1

CUSTOMER SERVICE ACTION PLAN

INFORMATION ARCHITECTURE STANDARDS ADOPTION PROCESS

BACKGROUND

The Deputy Assistant Secretary for Information Management, who is also designated as the Department of Energy Chief Information Officer, tasked the organization to leverage and coordinate efforts of a nationwide crosscutting team of information management professionals from the Department and its contractors to create and implement a Department wide information architecture (Information Management Strategic Plan Action 3.1.2).

This crosscutting team, named the Information Management Planning and Architecture Coordinating Team (IMPACT) identified that the architecture is based on principles that focus on open standards and interoperability. The architecture is to be implemented cooperatively on a decentralized basis and adopted standards will be based on a broad common vision that will guide the transition from the *current baseline* architecture to the vision of the *target* architecture and its seamless operations.

The IMPACT Team also identified the need for a standards adoption process at an initial meeting in October 1994. The Team documented the standards adoption process at a follow up meeting in May 1995. This process is viewed as a major component of the information architecture concept.

The process consists of the following key steps:

- ◆ Proposed standards are submitted to the DOE IT Standards Manager for Department wide adoption or consideration;
- ◆ Requests for comments are solicited from Information Technology Standards Points of Contact, IMPACT members, and any identified subject matter experts;
- ◆ The IT Standards Manager receives Site comments and forwards a consolidated Departmental response to the Originating Body;
- ◆ The Originating Body provides comments resolution to the IT Standards Manager;
- ◆ The IT Standards Manager distributes the comments resolution to Points of Contact for response and consensus position;
- ◆ If no comments are received from the Sites, consensus is implied;
- ◆ If consensus is reached, the standard is sent to the approval process. If consensus is not reached, the standard proposal is returned to the Originating Body and is not adopted.

Figure 1, "Information Architecture Standards Adoption Process, Cycle of Service," presents a graphic illustration of a summary of the new process.

CUSTOMER AND STAKEHOLDER IDENTIFICATION

The customers for this standards adoption process are the standards proponents, i.e., affinity groups (users with like requirements) and/or functional business areas such as electronic commerce, videoteleconferencing, electronic signatures, E-mail/file transfer, etc. When a "customer" proposes a standard for adoption by stakeholders throughout the Department, the cycle of service begins. Ultimately, every information user within the Department becomes a stakeholder due to the very nature of the process.

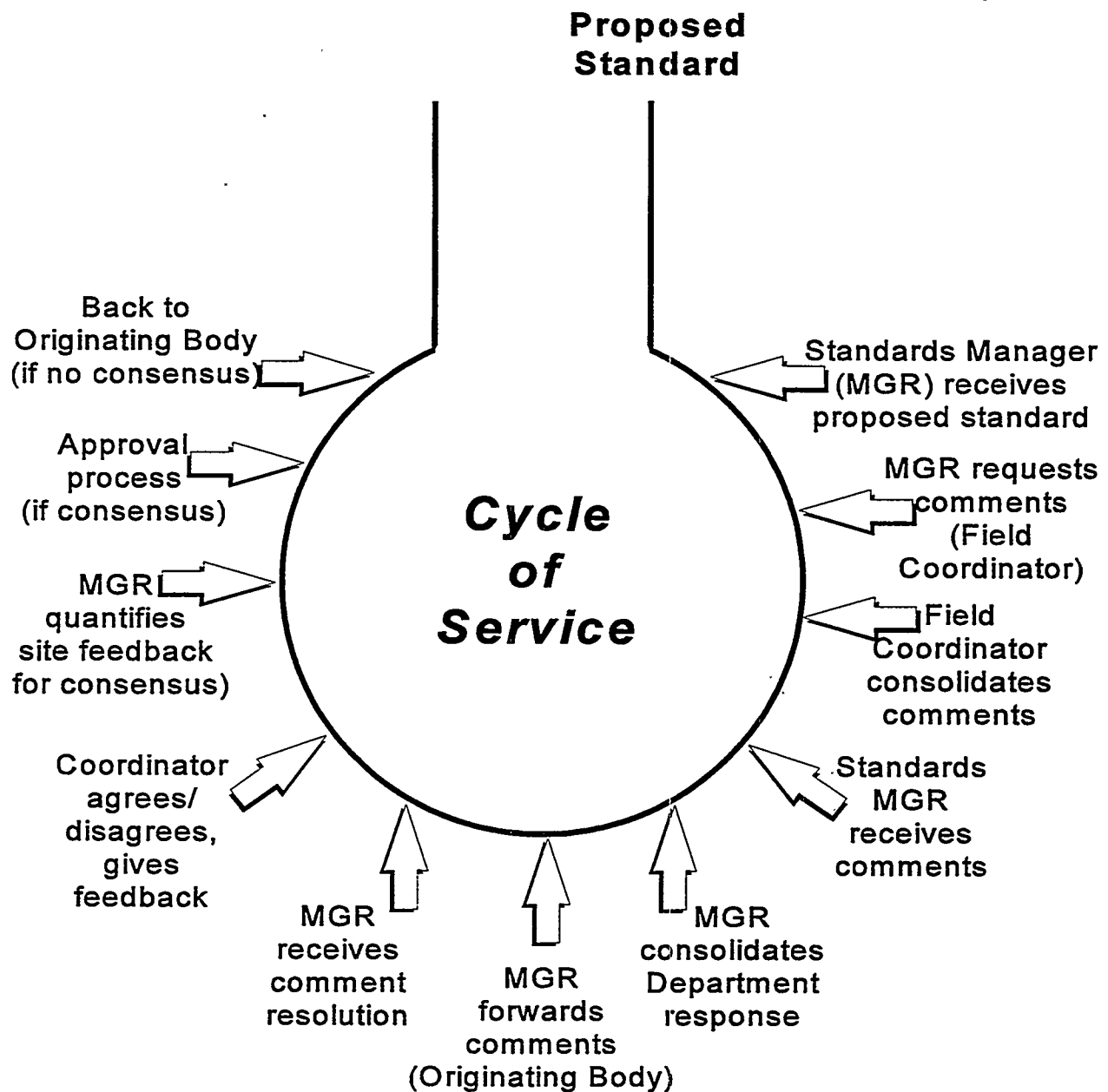
VISION, SERVICE GOAL, AND STRATEGY

VISION: Implement a process for adoption of Information Technology Standards that aligns with the Departmental Information Architecture, is timely, creates shareholder value, and meets customer needs.

SERVICE GOAL: To provide a consensus process that implements standards to aid planning and acquisition of information technology that is *open and interoperable*.

STRATEGY: To adopt and implement a body of standards (via this process) that are consensus-based with active participation of all DOE stakeholders. A key component of the strategy will include numerous stakeholders during evaluation and comment phases to gain their assistance and ensure buy in. If a proposed standard completes the "Cycle of Service" (Figure 1) and is not approved for adoption because it did not achieve Departmental consensus, then it will be returned to the originating body (or affinity group) with an explanation of why it was not adopted.

Information Architecture Standards Adoption Process



SERVICE TEAM

The Service Team consists of three components. These are a core Headquarters Group, the Information Management Planning and Architecture Coordinating Team (IMPACT), and Information Technology Standards Points of Contact.

HQ Group Members

Michael Tiemann, HR-431
Carol Blackston, HR-431
Bruce White, HR-431
Richard Serbu, EH-31
Ovidio O.R. Santivanez, DynCorp

IMPACT Team Members

Team members are included at Appendix A.

INFORMATION TECHNOLOGY STANDARDS POINTS OF CONTACT

Points of contact are included in Appendix B.

APPROACH

The need for a Standards Adoption Process was identified during the initial IMPACT Meeting held in Idaho Falls, Idaho in October 1994. A high-level description of the process is contained in the *DOE Information Architecture, Volume I, The Foundations, March 1995*.

A detailed version of the process was developed during the third IMPACT Meeting held in May 1995.

Partnership and coordination activities are ongoing with the DOE Technical Standards Program, managed by EH-31. Proposed standards will also be coordinated with Technical Standards Points of Contact.

This Service Action Plan was developed to promote awareness and request assistance with implementation of this new internal Departmental process. A follow on document is being prepared to provide more detailed guidance on internal and external Information Technology Standards Program and Process activities.

COMMUNICATION STRATEGY

Effective communication is recognized as an essential element in the success of this activity. The following mechanisms will be used for communication among the Service Team, customers and stakeholders.

- ◆ Department wide Information Architecture Standards Workshops
- ◆ List Server Technology (IMPACT ListServ)
- ◆ List Server Technology (DOE IA Standards ListServ - Los Alamos)
- ◆ Information Architecture Home Page (<http://www.hr.doe.gov/iat>)
- ◆ Technical Standards Home Page
(<http://apollo.osti.gov/html/techstds/techstds.html>)
- ◆ Electronic Mail
- ◆ Facsimile Technology
- ◆ Telephone
- ◆ Video taping of Information Architecture Meetings
- ◆ Video Teleconferencing

The following documents are in use for communication between the Service Team and the customers.

- ◆ DOE Information Architecture, Volume I, *The Foundations*, March 1995
- ◆ *DOE Information Architecture Standards Workshop Summary*, May 1995
- ◆ *DOE Information Architecture Profile of Standards (Draft)*, December 1995
- ◆ *DOE Information Management Standards Program and Process Guide (Draft)*, November 1995.
- ◆ *The Standards Forum*
- ◆ *Standards Actions*

AUDITING THE SERVICE

Auditing is currently being performed informally using E-mail and telephone. More formal auditing is being performed via the use of the World Wide Web Home Page located at the following Universal Resource Locator: <http://www.hr.doe.gov/iat>.

CUSTOMER FEEDBACK

There have been three separate IMPACT meetings held within the past year. At

each session, all participants are specifically tasked to provide feedback and are constantly reminded that the information architecture process has to be *consensus based* to achieve established goals of the program. Moreover, sessions have been captured on video for posterity, and to provide a visual gauge of the atmosphere surrounding these very important events.

A fourth IMPACT Meeting is tentatively being scheduled for 1996 for further evaluation and refinement of the Standards Adoption Process.

Routine customer feedback is primarily achieved via:

- ◆ E-mail Transactions
- ◆ Facsimile
- ◆ World Wide Web Home Page
- ◆ ListServ Distribution Services

EMPOWERMENT PLAN

The Standards Adoption Process has been distributed to all customers who have participated in the IMPACT Team meetings. They were provided with a consolidated document (*DOE Information Architecture Standards Workshop Summary*, May 1995) that contains a record of the process in its earliest stages. A subsequent document (*DOE Information Management Standards Program and Process Guide*) will be distributed to all points of contact and uploaded onto the Home Page for access by all customers. Upon loading onto the Home Page, a notice will be sent to all IMPACT Team members and other interested participants via list service distribution services. These actions are initiated at the direction of the DOE Information Technology Standards Manager and staff.

REINFORCEMENT (Rewards, Reminders, and Recognition)

All IMPACT Team members, as well as other interested individuals, were given praise for their efforts to develop the DOE Information Architecture at the initial IMPACT Meeting (October 1994) by the Deputy Assistant Secretary for Information Management, Mr. Woody Hall who has now been officially designated as the Department of Energy Chief Information Officer.

Subsequent IMPACT Meetings have also had high-profile visibility and participants have provided maximum effort to the workshop proceedings. Many beneficial products have been developed at these sessions. These efforts are

consistently reinforced through communications provided to them, and their management, by the Department's Information Architect, Mr. Michael Tiemann; the Information Technology Standards Manager, Ms. Carol Blackston; and the DOE Information Architecture Team (HR-431).

BENEFITS

The most prominent benefits from this process are the Department's ability to:

- ◆ Coordinate standards requirements of DOE "affinity groups" to ensure overall interoperability and interconnectivity among the wider DOE community.
- ◆ Select appropriate standards from among many that are within the marketplace.
- ◆ Select a standard(s) for specific function(s) where one does not currently exist (or one has not been selected by a standard-setting organization).
- ◆ Add value to existing standards.
- ◆ Assist in the further delineation of the information architecture and its implementation throughout the Department.

MEASURING SUCCESS

Implementation of this process will provide a methodology for efficient proposal, evaluation, and adoption of information management standards for Department-wide application.

The success of the process will depend on the degree to which the stakeholders are active in the process. The most successful standards are those adopted as a result of a consensus-based participatory process that actively involves the stakeholders.

APPENDIX A

IMPACT TEAM MEMBERS & OTHER PARTICIPANTS

NAME	ORGANIZATION	PHONE	E-MAIL
Scott Applonie	DOE-ID/CIO	(208) 526-8558	applonsd@inel.gov
Carol Blackston	HQ DOE HR-431	(301) 903-4294	(carol.blackston@hq.doe.gov)
Don Bradley	CDSI	(301) 903-1808	(donald.bradley@hq.doe.gov)
Tom Brengle	LLNL	(510) 422-8505	(brengle@llnl.gov)
Bruce Campbell	CRC	(903) 903-0443	(bruce.campbell@em.doe.gov)
Sue Combs	DP-44	(301) 903-5043	susan.combs@hq.doe.gov
Lillian Cooper	AlliedSignal-KCD	(816) 997-4211	lcooper@kcp.com
Gary DeWitt	HQ DOE EM-143	(903) 903-0443	(gary.dewitt@em.doe.gov)
Michael Eaton	Sandia National Labs	(505) 844-5340	(mjeaton@sandia.gov)
Ann Edgeington	DynCorp	(301) 903-2221	ann.edgeington@hq.doe.gov
Steve Elbert	AMES	(515) 294-1307	(elbert@ameslab.gov)
Jean Freeney	DOE Oak Ridge	(615) 576-7044	Not available
John Greenhill	HQ DOE NN-40	(301) 903-8779	Greenhill@OV
Pat Heinig	HQ DOE EH-72	(301) 903-9850	(pat.heinig@hq.doe.gov)
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APPENDIX B

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Stds Manager	HQ DOE (HR-432 Tech Assess)		
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Chief Info Office	US DOE Idaho		
Computation Dept	Lawrence Livermore NL		
Stds Manager	Princeton Plasma Physics Lab		
Manager IS Dept	Bechtel Petroleum Oper		hqccmail - nprcdoe
PASD	US DOE Albuquerque		
PMO	US DOE SPRO		
Stds Manager	US DOE SWPA		
Librarian (A-1401.1)	US DOE SWPA		
Tech Library	US DOE SEPA	(706)213) 3820	wadeg@wapa.gov

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Friday, April 12

PANEL PRESENTATIONS:

**DOE TECHNICAL STANDARDS
PROGRAM GOALS AND
OBJECTIVES**

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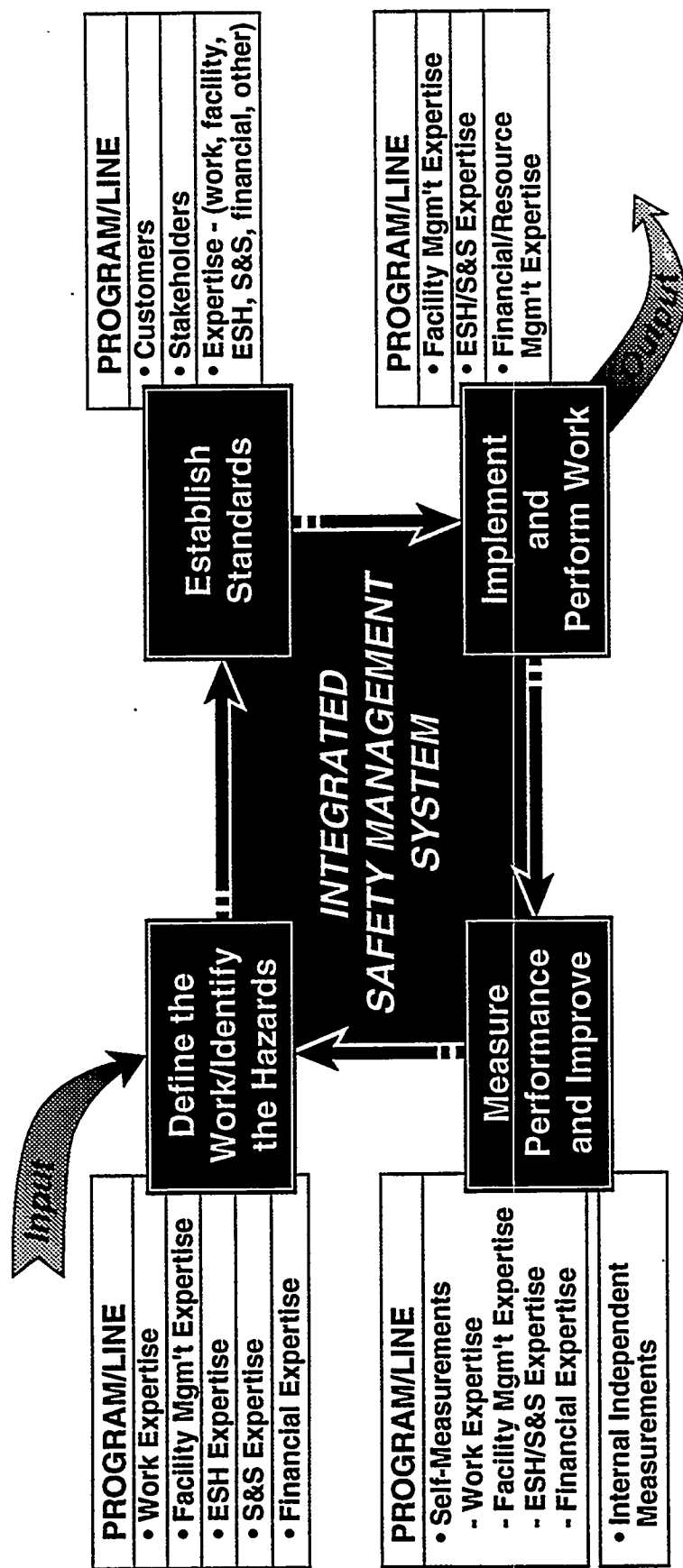
**Integrated Safety Management
Derived from
Integrated Standards-Based Management
at
Los Alamos National Laboratory**

Lynne Kroggel

April 12, 1996

Los Alamos _____

Integrated Environmental Protection, Safety, and Health Management



Founded on the Guiding Principles for Integrated Environmental Protection, Safety, and Health Management



Guiding Principles for Integrated Environmental Protection, Safety, and Health Management

The fundamental premise of Integrated Environmental Protection, Safety, and Health (ES&H) Management is that the DOE and the Laboratories use sound management principles that systematically integrate ES&H into management and work practice at all levels so that missions are accomplished with an adequate level of protection to the public, the worker, and the environment. Comprehensive protection is achieved only through coordination and integration of the individual elements of ES&H and related functions.

Guiding Principles for Integrated Environmental Protection, Safety, and Health Management

PRINCIPLES

Management Accountability:

1. The safety of the workplace and the public is a line management responsibility. Performing the work safely is the responsibility of every individual.
2. Resources are appropriately allocated to balance programmatic, operational, and ES&H considerations.
3. It is essential to involve all affected parties in order to plan work effectively so that ES&H concerns are addressed adequately.
4. Preventing adverse ES&H consequences is a priority when activities are being planned or performed.

DOE and Laboratory Relationships:

5. The DOE and the Laboratories will team in a mutually supportive manner to ensure integrated ES&H systems are implemented.
6. The DOE and Laboratory agree on the basis by which operations can be initiated and conducted: the type of authorization agreement is based on the activity and the hazard.
7. ES&H requirements, hazards, concerns, and lessons learned are communicated openly, fully, and effectively.

Competence Commensurate with Responsibility:

8. Management promotes a safety culture, emphasizing technical competence, respect for hazards, and concepts of individual responsibility and accountability.
9. Workers possess knowledge, skills, and abilities that are matched to the work to be performed.

Appropriate, Comprehensive, and Implemented Requirements:

10. Before work is performed its potential impact on the safety and health of the public, the workers, and the environment is evaluated to ensure adverse consequences are prevented.
11. Based on process knowledge, administrative and engineering controls are established to provide protection and mitigation of hazards. The level of control will vary based on the type of activity and the level of hazard.
12. Approaches to ES&H management are improved continuously based upon lessons learned continuing self-assessment and expanding vision.
13. Agreed-upon sets of ES&H requirements are appropriate and comprehensive.

Prescription for Laboratory's Current ES&H Programs

- **Policy**
- **Program**
- **Procedure**

Los Alamos National Laboratories Embodiment of Guiding Principles for Integrated ES&H Management

Principle 1:

The safety of the workplace and the public is a line management responsibility. Performing the work safely is the responsibility of every individual.

Descriptive Title	Reference
Formality of Operations	LANL DP-102
Environment, Safety and Health	LANL DP-103
Stop Work and Restart	LANL DP-116
Facility Management	LANL DP-124
Environmental Protection, Safety and Health Standards	DOE Order 5480.4
Environmental, Safety, and Health Policy for the DOE Complex	DOE P 450.1
General Environment Protection	DOE Order 5400.1
Contractor Occupational Medicine Program	DOE Order 5480.8
Construction Safety and Health Program	DOE Order 5480.9
Conduct of Operations Requirements	DOE Order 5480.19
Nuclear Safety Policy	SEN-35-91

Description:

- Clear and unambiguous lines of authority and responsibility for ensuring safety of the workplace and the public are established and maintained at all organizational levels within the DOE and the Laboratories.
- The line organizations that conduct programmatic work within a facility are ultimately responsible for the safety of the work performed. Line managers have the authority and are expected to make ES&H implementing decisions that are commensurate with their work and safety responsibilities. Additionally, the line organization that owns a facility is responsible for ensuring that the facility is maintained and operated in accordance with established operating agreements while protecting the health and safety of the facility workers, the public, and the environment.
- Individual responsibility and accountability are part of the culture. Each worker is personally responsible for adhering to all applicable procedures and safety requirements. Everyone has the authority to stop unsafe work and to recommend changes to improve the quality, reliability, and safety of their work.

Los Alamos National Laboratories Embodiment of Guiding Principles for Integrated ES&H Management

Principle 4: *Preventing adverse ES&H consequences is a priority when activities are being planned or performed.* Embodiment:

- Description:**
- The most effective mitigation is often outright elimination of hazards through improved planning, design, or technology.
 - Effective ES&H planning involves understanding the interrelationships and interfaces between the individual elements of ES&H.
 - Uncertainties in mission, characterization of hazards, and facility design basis are accommodated during planning.

Descriptive Title	Reference
National Environmental Policy Act	SEN-15-90
Performance Indicators and Trending Program for DOE Operations	SEN-29-91
Occurrence Reporting and Processing of Operations Information	DOE Order 5000.3B
General Environmental Protection Program	DOE Order 5400.1
Hazardous and Radioactive Mixed Waste Program	DOE Order 5400.3
Comprehensive Environmental Response, Compensation, and Liability Act Requirements	DOE Order 5400.4
Radiation Protection of the Public and the Environment	DOE Order 5400.5
National Environmental Policy Act Compliance Program	DOE Order 5440.1D
Environment, Safety and Health Program for DOE Operations	DOE Order 5480.1B
Environmental Protection, Safety, and Health Protection Standards	DOE Order 5480.4
Safety of DOE-Owned Nuclear Reactors	DOE Order 5480.6
Fire Protection	DOE Order 5480.7
Contractor Occupational Medical Program	DOE Order 5480.8
Construction Safety and Health Program	DOE Order 5480.9
Contractor Industrial Hygiene Program	DOE Order 5480.10
Radiation Protection for Occupational Workers	DOE Order 5480.11
Conduct of Operations at DOE Facilities	DOE Order 5480.19

(continued on next page)

Los Alamos National Laboratories Embodiment of Guiding Principles for Integrated ES&H Management

Safety Analysis and Review System	DOE Order 5481.1B
Personnel Selection, Qualification, Training, and Staffing at DOE Reactor and Non-Reactor Nuclear Facilities	DOE Order 5480.20
Unreviewed Safety Questions	DOE Order 5480.21
Technical Safety Requirements	DOE Order 5480.22
Nuclear Safety Analysis Reports	DOE Order 5480.23
Nuclear Criticality Safety	DOE Order 5480.24
Natural Phenomena Hazards Mitigation	DOE Order 5480.28
Nuclear Reactor Safety Design Criteria	DOE Order 5480.30
Startup and Restart of Nuclear Facilities	DOE Order 5480.31
Environment, Safety, and Health Appraisal Program	DOE Order 5482.1B
Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities	DOE Order 5483.1A
Environmental Protection, Safety, and Health Protection Information Reporting Requirements	DOE Order 5484.1
Emergency Management System	DOE Order 5500.1B
Emergency Categories, Classes, and Notification and Reporting Requirements	DOE Order 5500.2B
Planning and Preparedness for Operational Emergencies	DOE Order 5500.3A
Public Affairs Policy and Planning Requirements for Emergencies	DOE Order 5500.4
Emergency Planning, Preparedness, and Response to Continuity of Government Emergencies	DOE Order 5500.9
Quality Assurance Program	DOE Order 5700.6C
Radioactive Waste Management	DOE Order 5820.2A

General Design Criteria	DOE Order 6430.1A
Nuclear Safety Rule: Quality Assurance Requirements	10 CFR 830.120
Worker Radiation Protection	10 CFR 835
Quality	LANL DP 110
Operational Risk Management	LANL DP 114
Unreviewed Safety Question Determination	LANL LS 114-01.0
Safety Analysis and Review System	LANL AR 1-6
Environment, Safety and Health Questionnaire	LANL AR 1-10

AUTHORIZING WORK - The Challenge to Change *BEHAVIOR*

"Applicable to ALL PERSONNEL Directing/Performing Work at Los Alamos"

AS IS

Process Based

- Has ESH-xx signed?
- Has BUS-yy signed?
- Has FSS-zz signed?
- Has permit aa been signed?
- Has form bb been signed?
- etc., etc.?

MISSING

Thinking Based

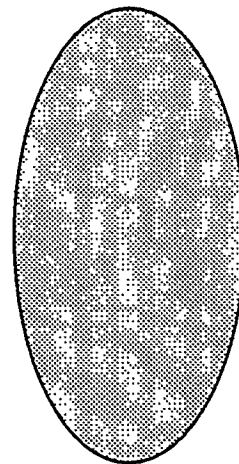
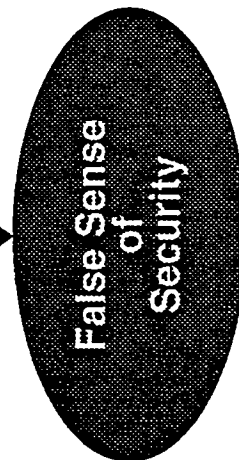
- Do I understand the work?
- Do I understand the hazards?
- Do I have confidence in the controls?
- Have I appropriately informed others of the hazards and controls?
- Is the risk acceptable to me?
- Do I accept responsibility for the safety of the work?

NECESSARY

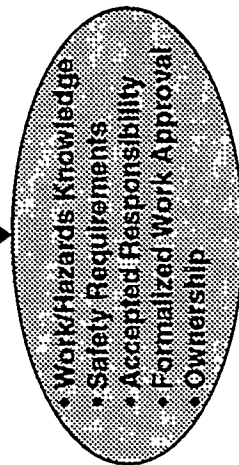
Thinking/Process Based

- Do I understand the work?
- Do I understand the hazards?
- *Do I understand the safety requirements?*
- Do I have confidence in the controls?
- Have I appropriately informed others of the hazards and controls?
- Is the risk acceptable to me?
- Do I accept responsibility for the safety of the work?
- *Is the authorization to do the work appropriately formalized?*

Process Compliance



Informed performance



AS IS → Authorize - Perform Work ← NECESSARY

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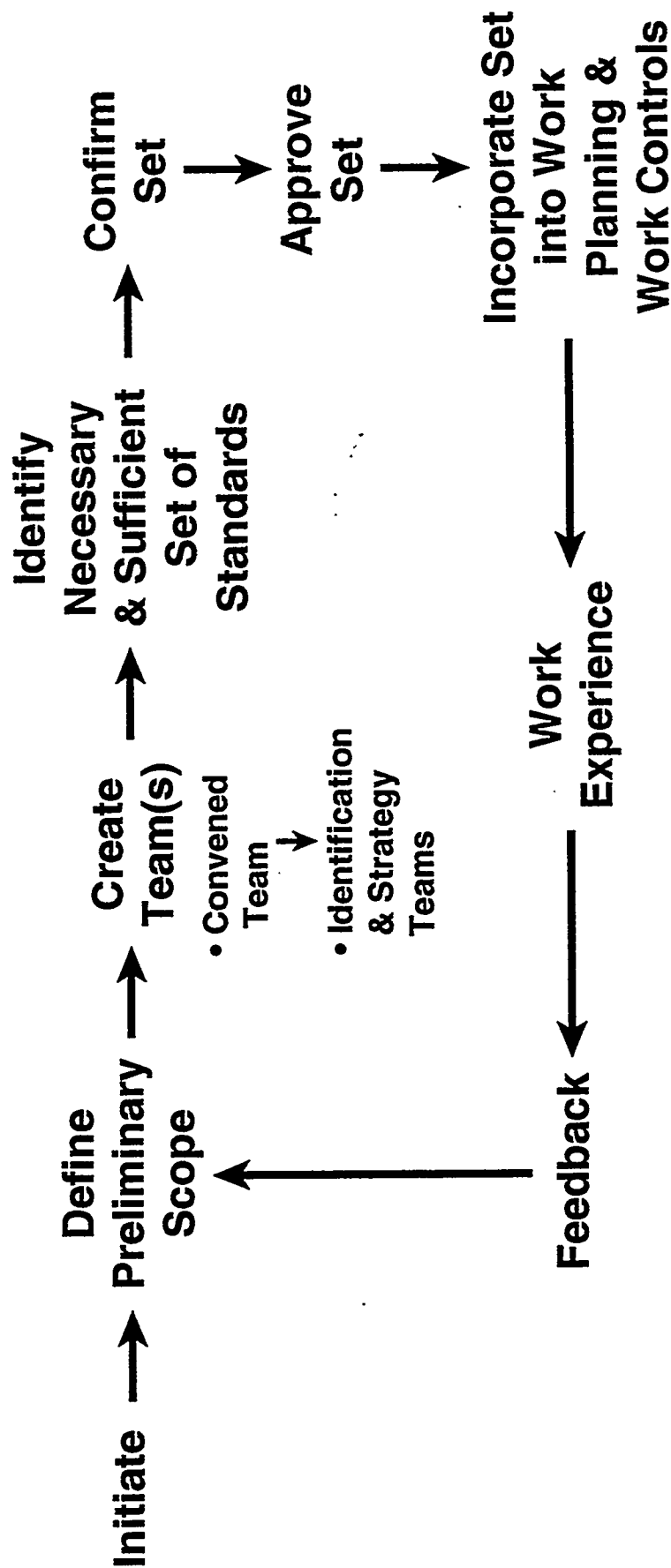
Laboratory Integrated Standards-Based Management

Goal

Continuously improve the *safety, security, reliability, and cost effectiveness* of accomplishing Laboratory work through integrated management based on *standards appropriate for the work and the hazards.*

Laboratory Integrated Standards-Based Management System

Necessary and Sufficient Process



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"Super" Convened Group

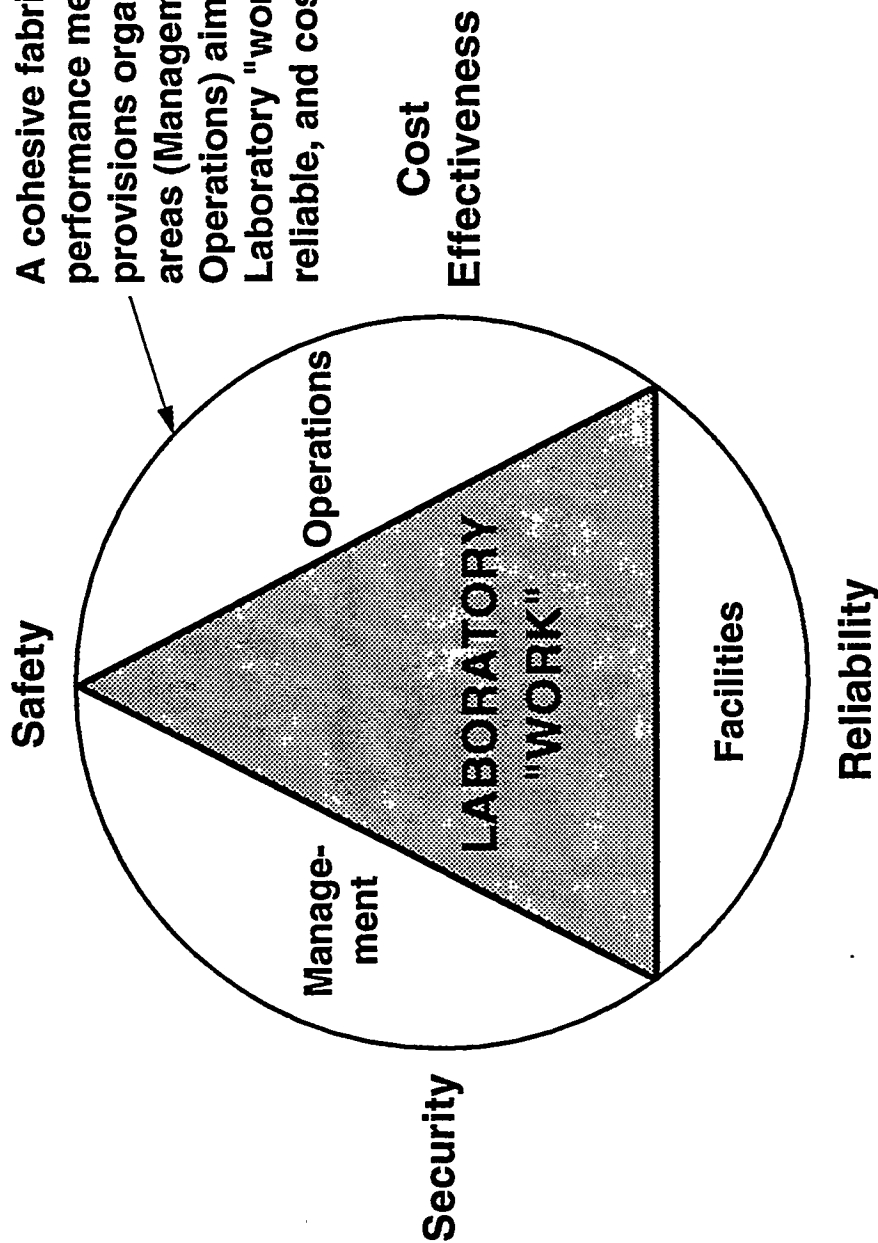
GROUPS	MEMBERS
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2. LANL Employee	EAC/Bill Zwick SEAC/Cindy Sandoval Steve Greene
3. DOE	Dennis Miotla Nick Dienes Bud Danielson Richard (Dick) Crowe Larry Kirkman Margaret (Maggie) Sturdivant Maria Gavrilas-Guinn David Nelson
4. UC	Howard Hatayama
5. LANL Management	Bernie van der Hoeven Dick Burick Katherine Brittin Paul Cunningham Stan Schriber Dennis Erickson Allan Johnston Frances Menlove Don Sandstrom
6. Facility Managers	Rich Ryder
7. JCI/Unions	George Vavra
8. DOE Facility Mentor	Tom Pestorius
9. LLNL	George Campbell

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Laboratory Integrated Standards-Based Management System

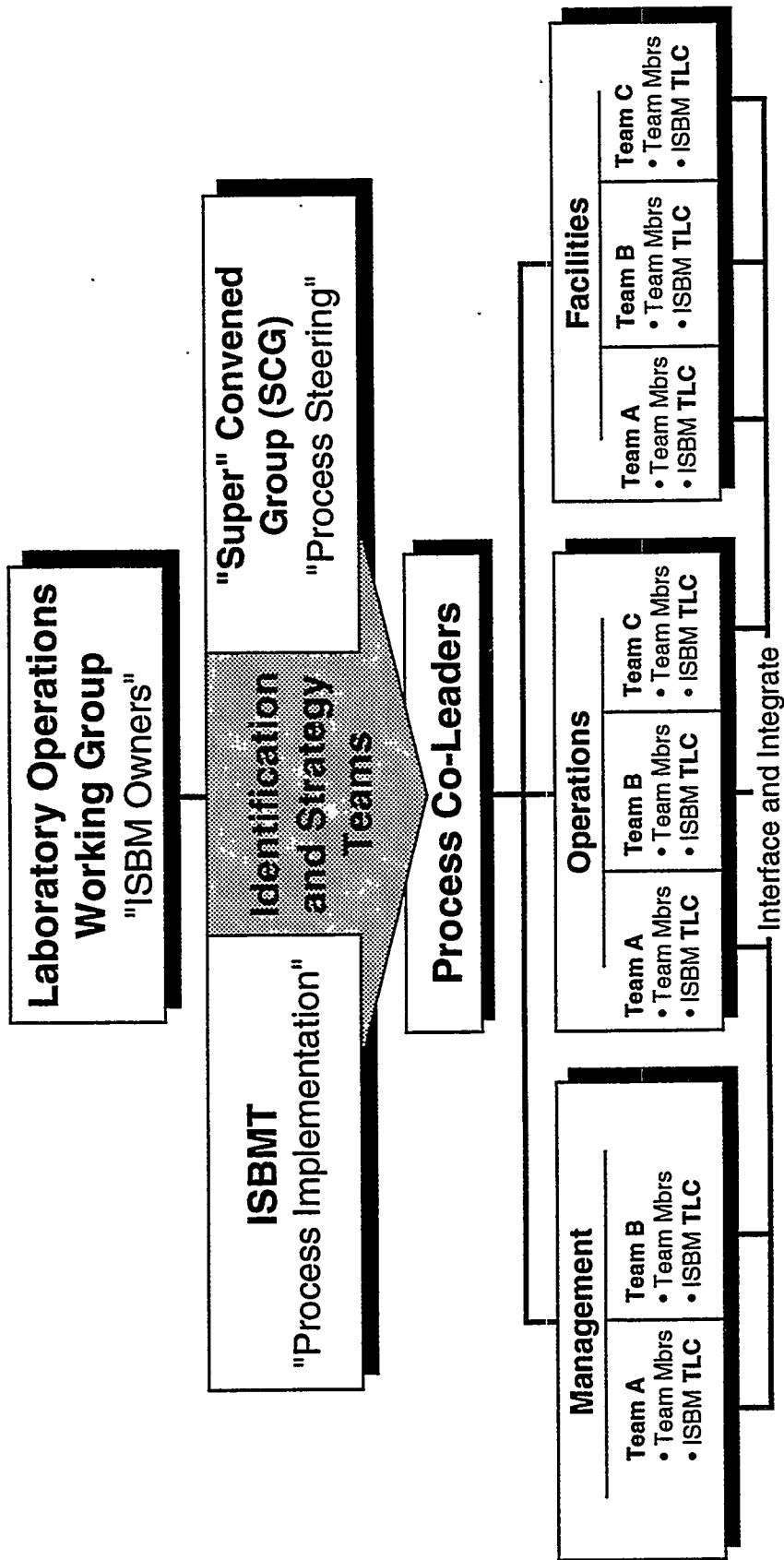
ISBM System

A cohesive fabric of tailored standards, performance measures, and implementing provisions organized into three functional areas (Management, Facilities, and Operations) aimed at accomplishing Laboratory "work" in a safe, secure, reliable, and cost-effective manner.



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Laboratory Integrated Standards-Based Management – Organization



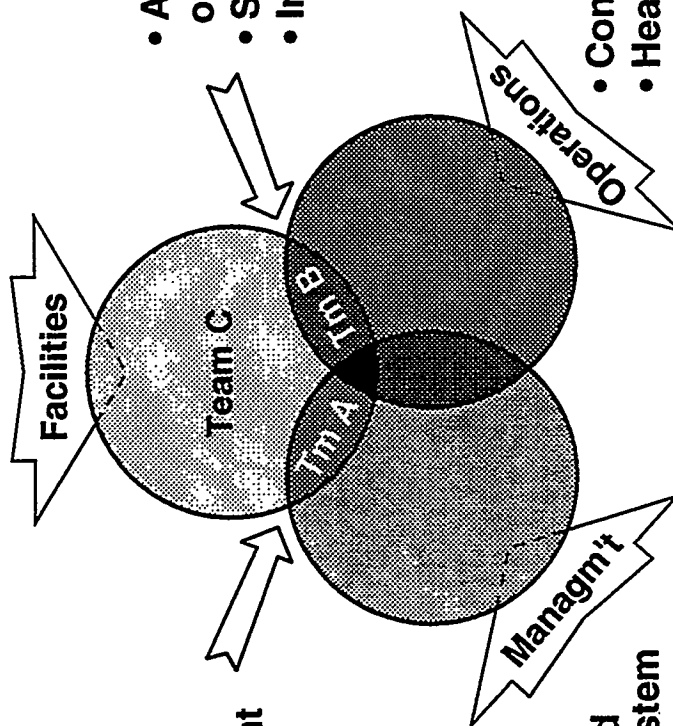
TLCs—Team Liaison Coordinators

- ISBM Process Stakeholder
- Central point for
 - Product assistance – IST, ISBMT, other team consistency interfaces
 - Schedules
 - Resource requests – Team record

The ISBM System

Team C

- Physical Life Cycle Asset Management
- Interface for Facility: Cradle to Grave



Team A

- Management of Facilities and Supporting Services
- Interface with Management

Team B

- Analysis and Management of Risk
- Safety Envelope, etc.
- Interface to Operations

- Standards-Based Management System
- Information Management
- Strategic Planning
- Programs Management
- Resources Management
- Laboratory Relationships

- Conduct of Work
- Health and Safety
- Emergency Management
- Environment Protection
- Packaging and Transportation
- Safeguards and Security

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Laboratory Integrated Standards-Based Management (ISBM)

Format for Laboratory Performance Requirement (Standard)

- I. Standard**
- II. Performance Criteria**
- III. Justification**
- IV. Performance Measure(s)**
- V. References**
 - V. A. Other Related Requirements (Optional)**
 - V. B. Guidance (Optional)**
 - V. C. Exemptions (Optional)**
 - V. D. References (Optional)**

Radiation Protection Program Pilot

Subject: Radiation Dose Limits (DOSE)

Date: 10/10/95

Standard:

Exposures to radiation workers and non-radiation workers (including the public) at the Laboratory shall not exceed specified annual or lifetime limits.

Performance Criteria:

(PC1) 1. Non-radiation workers, members of the public, and minors shall not receive greater than 100 mrem/yr total effective dose equivalent (TEDE). [835.207, 208]

(PC2) 2. Radiation workers shall not receive greater than 5 rem/yr (TEDE) [835.202(a)(1)], 15 rem/yr [835.202(a)(3)] to the lens of the eye, 50 rem/yr (shallow dose equivalent) to the skin or any extremity [835.202(a)(4)], 50 rem/yr [835.202(a)(2)] to any organ or tissue other than the lens of the eye, or a lifetime dose at any time exceeding their age in rem. [NCRP 116/Chapter 6]

(PC3) 3. For radiation workers whose lifetime exposure exceeds their age in rem for any reason, excluding planned special exposures, a dose management plan shall be established to realign the individuals dose with the age limit. [NCRP 116/Chapter 6]

(PC4) 4. The dose equivalent limit for the embryo/fetus from the period of conception to birth, as a result of occupational exposure of a declared pregnant worker, is 0.5 rem [835.206.a]. Substantial variation above a uniform exposure rate that would satisfy this limit shall be avoided. [835.206.b] If the dose equivalent to the embryo/fetus is determined to have already exceeded 0.5 rem [835.206.c] by the time a worker declares her pregnancy, the declared pregnant worker shall not be assigned to tasks where additional occupational exposure is likely during the remaining gestation period.

(PC5) 5. Exposures from background, therapeutic and diagnostic medical radiation and voluntary participation in medical research programs shall not be included within the occupational dose limits. [835.202(c)] Occupational exposures received from all off-site sources are to be included for the purpose of meeting the limits prescribed. [835.202(b)]

N&S Justification:

The standard is necessary because it establishes radiation exposure limits necessary to control risk to levels comparable to accepted "safe industry" standards. It is sufficient in that it provides adequate protection to all people exposed to radiation resulting from Laboratory operations and allows for flexibility in implementation.

Performance Metrics:

1. Measurements demonstrate that doses are within prescribed limits.

Source References:

10CFR835.202, 206, 207, 208
NCRP 116, Chapter 8

Integrated Safety Management Derived from the Laboratory Radiation Protection Pilot

Closing Comments

- **Begins with Laboratory work**
- **Standards tailored to the way we do business**
- **Fosters line/worker level ownership in both
development and implementation**
- **Gives the Laboratory the path forward**

Laboratory Integrated Standards-Based Management

**Ownership demands acceptance
of responsibility**

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EM Vision of an Integrated Safety Management System

DOE Technical Standards Program 1996 Workshop

John Tseng, Director
Office of Safety and Health (EM-4)

(Presented by Dinesh C. Gupta)

April 12, 1996

Outline

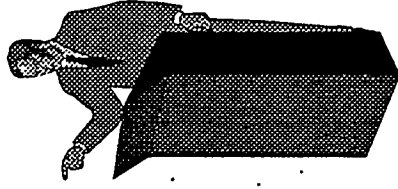
- ▮ Current Safety Management Initiatives
- ▮ Integration of Departmental Initiatives
(DNFSB 95-2)
- ▮ Necessary and Sufficient Process
- ▮ EM Vision for A Safety and Health Framework

DNFSB Testimony at 3/6/96 Defense Authorization Hearing

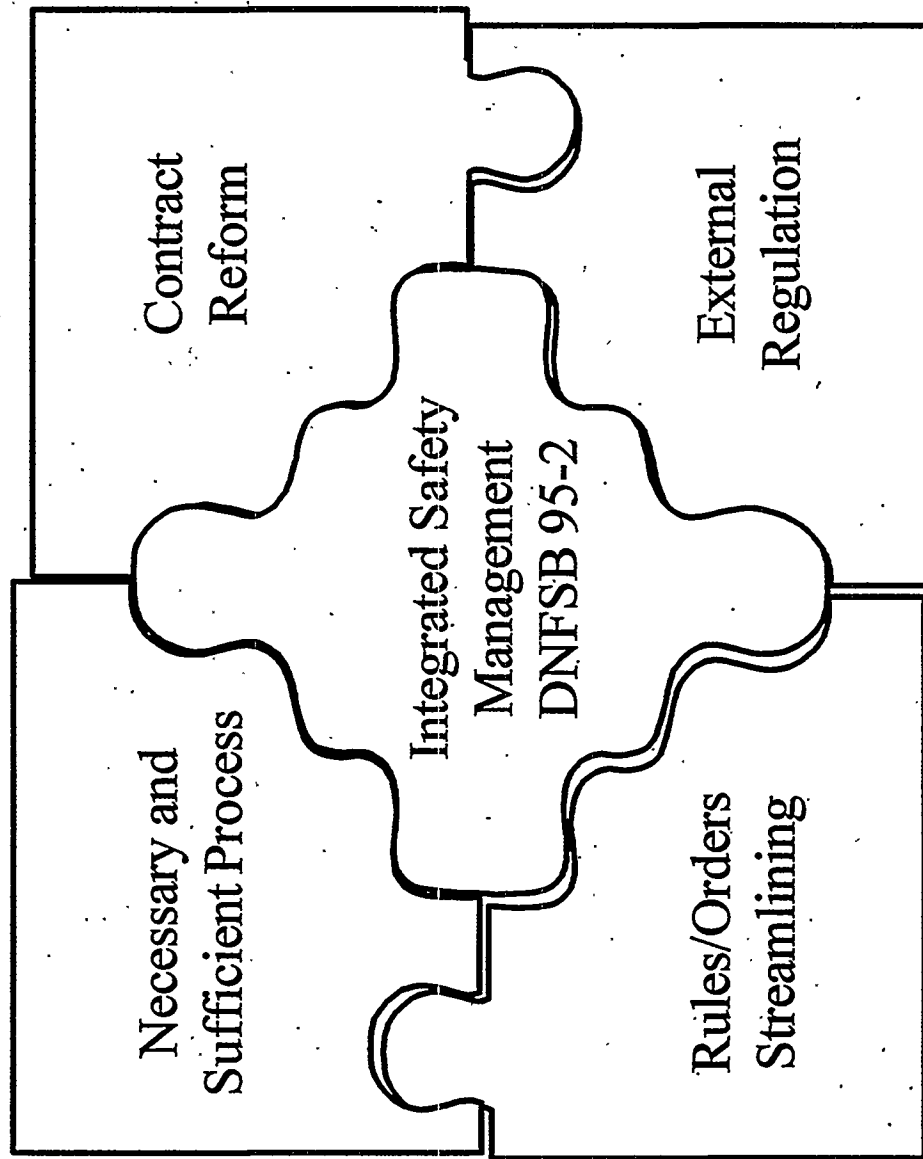
“DOE’s problem appeared to be more one of failure to establish clear expectations by DOE of its contractors and to build safety compliance into the fabric of work planning and execution.”

“... safety management programs ... [should be] tailored to the diverse operations that make up the DOE complex, the hazards-specific nature of the activities involved and the aged nature of the facilities ...”

“... DOE [should]... clearly define systems and components important to safety, the technical specifications that define limiting conditions for operation, and the infrastructure needed to support maintenance and safety in operation.”



Inter-Relationship of Departmental Initiatives



Contract Reform

Contract Reform Initiative Intended to Lead to Performance-Based Contracts

- ▶ What Work will be Done
- ▶ How Work will be Evaluated for Compensation

Need for Performance-Based Standards

- ▶ Quantifiable Product Specifications
- ▶ Safety Requirements
 - Numerical Standards
 - Principles, such as defense-in-depth

Rules/Orders Streamlining

- ◆ Reducing the Number of Orders and Streamlining Associated Requirements
- ◆ Developing Nuclear Safety Rulemaking

Need for Rules/Orders Streamlining to be Coordinated with Other Initiatives

External Regulation

External Regulation Working Group

- Identifying options and costs from external regulation
- Implementation package by May 15th

“No outside authority or authorities could or should be considered a substitute for an effective internal safety management structure and program.” - Ahearne Report

DNFSB Recommendation 95-2

- ◆ Institutionalize the Process that Ensures ES&H Objectives are Achieved
- ◆ Require Safety Management Plans and Operations to be Tailored According to Activity Risk
- ◆ Establish a Prioritized List of Facilities Based on Hazard
- ◆ Promulgate Requirements and Responsibilities for Carrying Out the Process
- ◆ Acquire Technical Expertise to Implement the Process

Implementation of DNFSB 95-2

- ☒ DOE Accepted Parts of the Sub-Recommendations
- ☒ DOE Formed an Executive Team and Implementation Teams to Develop an Implementation Plan
- ☒ DOE is Working Closely with DNFSB Members to Coordinate 95-2 Implementation

Draft Implementation Plan for 95-2

◆ Key Concept

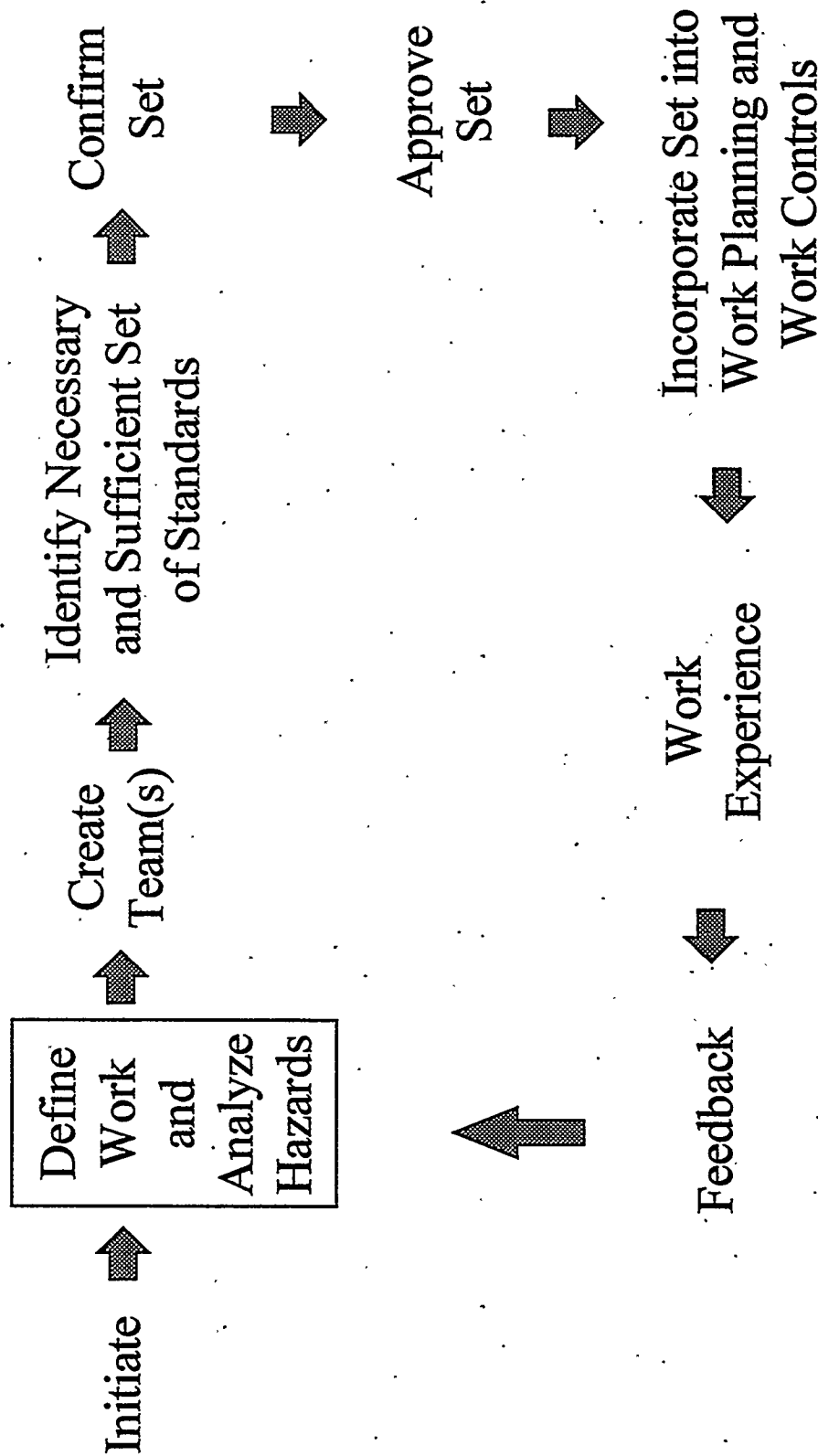
- Safety is an integral part of work planning and execution

◆ Implementation Plan to:

- Delineate a Safety Management System
- Identify the need for review and potential revision of ongoing initiatives
- Provide action plans to institutionalize the System

Necessary and Sufficient Process

- A Key Component of Standards-Based Safety Management



Necessary and Sufficient Process (cont'd)

- ◆ An Example of Departmental Commitment to Using an Integrated Safety Management System
- ◆ Smart Way to Develop S/RIDs
- ◆ Standards Tied to Work and Hazards
- ◆ Ownership by Workers, Field, and Stakeholders
- ◆ Approval at Lowest Organizational Levels

Necessary and Sufficient Process (cont'd)

EM Pilot Demonstrations

- Hanford Long-Term Surveillance of the Reduction Oxidation Facility
- Savannah River Groundwater Remediation Project
- Rocky Flats Draining Residual Plutonium Bearing Solutions in Building 371
- LLNL Radioactive Waste Receiving, Repackaging, Handling, Treating, and Storing
- Chicago Pile-5 Reactor D&D Project

EM Vision for Safety and Health Framework

- ◆ The Current EM Approach to Safety and Health is Based upon Individual Judgments both at Headquarters and in the Field
- ◆ The Draft Framework Establishes a Standards-Based Safety and Health System that is Integrated into the Overall EM Line Management System
- ◆ The Principles of the Department's Voluntary Protection Program (DOE-VPP) are Embodied in the Draft Framework

EM Vision for Safety and Health Framework (cont'd)

- ◆ Safety and Health will become a Part of All EM Work and not Simply a Separate Support Function
- ◆ A Performance-Based Management System will be at the Center of EM Program Management
- ◆ The Framework to be Issued by May 15, 1996

Summary

- ◆ Need for Integration of Current Departmental Initiatives
- ◆ DNFSB 95-2 Implementation Plan to Define the DOE Safety Management System and Serve as the Forcing Function to Address Integration
- ◆ Necessary and Sufficient Process is an Example of Departmental Commitment to Use Standards-Based Safety Management
- ◆ EM Developing a Safety and Health Framework Based on an Integrated Safety Management System

N & S Major Goals

- **Demonstrate rigor of next applications**
- **Institutionalize use of process**
- **Integrate with other initiatives**
- **Develop support services**
 - **Lessons learned**
 - **Communication**
 - **Education**
- **Inter agency transfer**

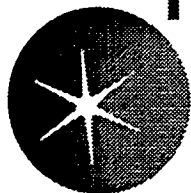
W. Earl Carnes

N & S Path Forward in Real Time

- Immediate
 - Lessons learned workshop
 - DSC meeting #18
 - Under Secretary Grumbly group
- Now — 3 months
 - Next applications
 - 95-2 Implementation Plan
 - Coaching
 - DNFSB interactions

- Training
- WWW page
- 3–6 months
 - Lessons learned
 - Expanded Education
 - Monitor process of next applications
 - Manual comment
 - Trending of work, hazards, and standards

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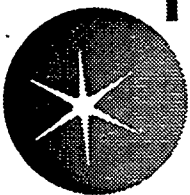


DOE Technical Standards Program

Objectives

- Promote the use of non-Government (voluntary) standards
- Manage conformance with Federal policy and reflect Federal and national programs
- Conduct DOE's technical standards activities in an efficient and effective manner
- Provide consistency with the Department Standards Program and New Directives System

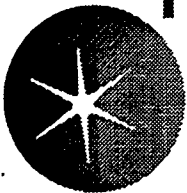
Richard J. Serbu



DOE Technical Standards Program

TSPO Services – Program Implementation

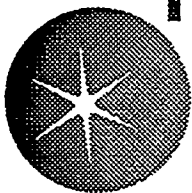
- **Technical Standards Program Procedures (updated 8/15/95)**
- **Identification of available standards**
- **DOE technical standards projects (e.g., registration, “tool kit”, coordination assistance, printing/distribution); over 100 DOE standards and handbooks published**
- **Personnel involved with voluntary standards bodies (799 personnel, 1656 participations)**
- **Conversion of DOE standards to voluntary standards (31 converted, 42 candidates identified)**
- **Support for activities of the Department Standards Committee and Directives Management Board**
- **Maintenance of/access to program information [e.g., commercial database and TSP database (Technical Standards Information System)]**



DOE Technical Standards Program

TSPO Services – Program Awareness

- *The Standards Forum and Standards Actions*
- Program workshops for Technical Standards Managers and involved DOE and contractor personnel
- Program listings
 - Standards (DOE-TSL-1)
 - Program points-of-contact (DOE-TSL-2)
 - Personnel involved in voluntary standards activities (DOE-TSL-4)
- Program briefings (site management and line personnel)
- Interactions with external organizations
 - Defense Nuclear Facilities Safety Board
 - Interagency Committee on Standards Policy (Federal)
 - Voluntary standards bodies (international/national)
 - Private sector



DOE Technical Standards Program

Future Direction/Challenges for Improvement

- **Implementation of Strategic Standardization Management practices**
 - **Tie to DOE/Cognizant Secretarial Officer organization goals**
 - **Effect through DSC/DMB**
- **Improving electronic access to standards information**
- **Increased use of existing standards**
- **Increased participation with voluntary standards bodies**
- **Development of case studies on standards use relevant to DOE**
- **Development of DOE technical standards to capture emerging technologies (energy efficiency/environmental management)**
- **Increased program awareness and acceptance**
- **Increasing customer satisfaction with TSPO services**